AMSTRAD COMPUTER USER

THE OFFICIAL AMSTRAD CPC MAGAZINE

AUGUST 1989
£1.25



TIME SCANNERS

THEIR TIME HAS COME

COMPETITION

WIN THE ORIGINAL ART WORK FOR TIME SCANNER

GAMEPLAN

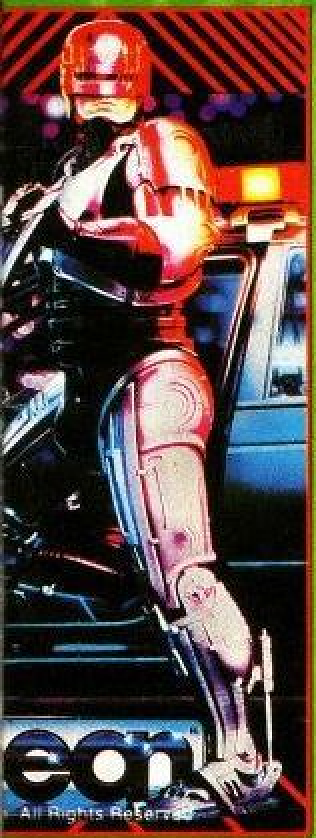
TWELVE PAGES OF THE LATEST GAMES INCLUDING BATTY, BOMB JACK II, TANK ATTACK, SKATE OR DIE, AND MANY MORE.

THE REGULARS

THE TRIUMPHANT RETURN OF THE HAIRY HACKER PLUS ALL THE FAVOURITES

INTELLIGENCE

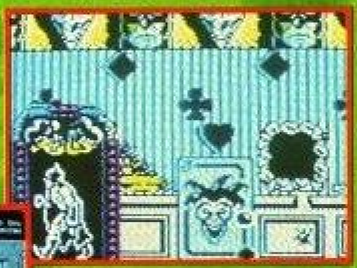
COP
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F THE MONTH
VIDEO GAMES

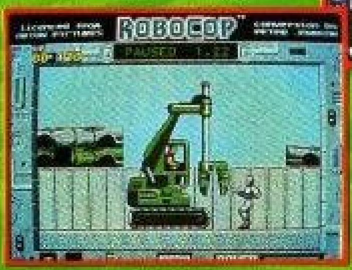


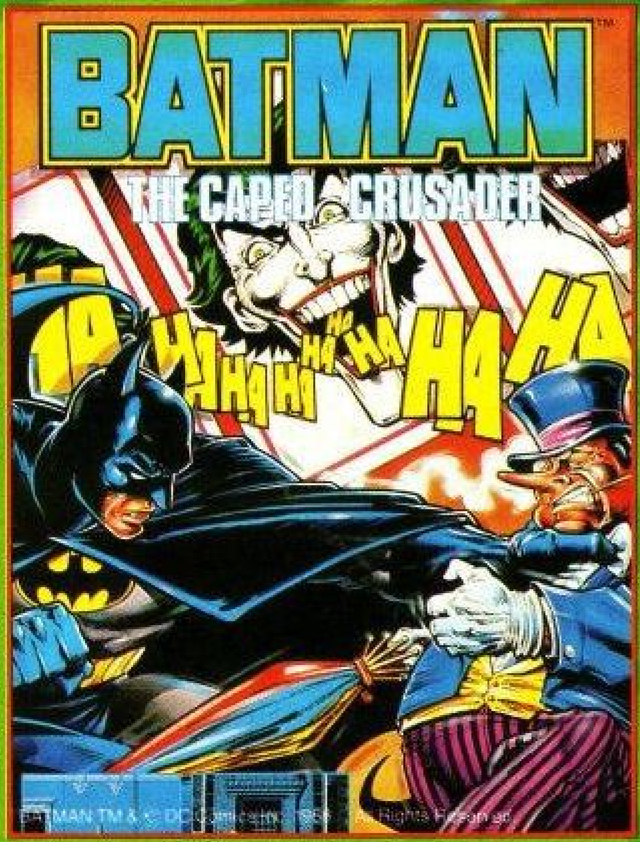
BATMAN
"Incredible presentation... Just the right way to capture the comic book feel."
ZZAP SIZZLER ZZAP 64

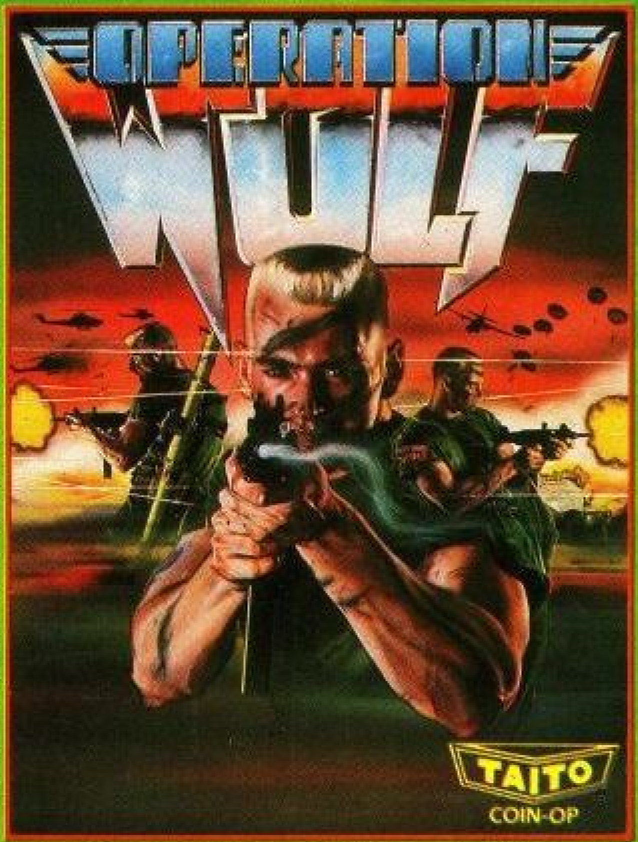
"Batman The Caped Crusader will suit riddlers of all ages."
ACU STAR GAME AMSTRAD COMPUTER USER

"Ocean have made a fantastic job on Batman and being in two parts you get excellent value for money. Brilliant!"
A CRASH SMASH CRASH









OPERATION WOLF
Voted "Game of the year." The world's No. 1 arcade game. "Super-smooth scrolling and excellent graphics... Without doubt this is a first class shoot em up."
A CRASH SMASH CRASH

"Definitely the coin-op of the year... Buy Operation Wolf it's a brilliant conversion."
C+VG GAME OF THE MONTH
COMPUTER + VIDEO GAMES



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The CRUCIAL COMPILATION





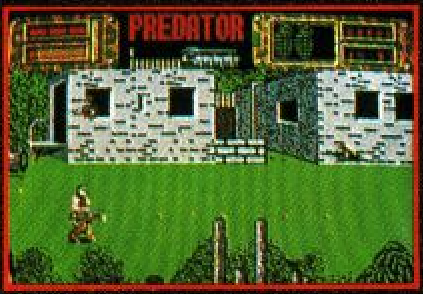
GRYZOR Featuring all the game-play of the arcade original, Gryzor takes you into a thrilling alien world of force fields, fanatical guerillas and strange enemy defence systems – but you have the fire-power and maybe, with a 'little' skill, grit and split second timing, you can infiltrate the aliens' headquarters. Play Gryzor once and you'll be hooked!
© 1987 Konami



BARBARIAN THE STORY SO FAR... The evil sorcerer Drax has agreed that if a champion can be found who is able to defeat his demonic guardians, the Princess Mariana will be released. From the wastelands comes an unknown barbarian, a mighty warrior, wielding his broadsword with deadly skill. Can he vanquish the forces of Darkness? ONLY YOU CAN SAY...
© Palace Software Ltd



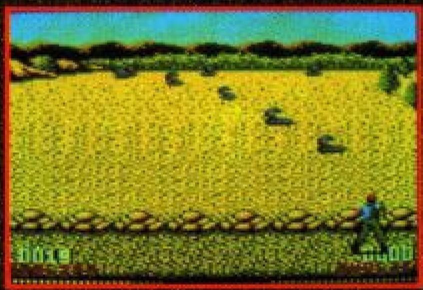
CRAZY CARS You are racing in the world's craziest race: "The American Cross Country Prestige Cars Race". If you are able to complete the race before the time runs out, you will get a faster car. You start with a Mercedes 560 SEC, and only the world's best drivers may drive a Ferrari GTO.
PREPARE TO START, READY? GO!!!
© Titus Software Ltd.
LAST NINJA replaces C CARS on C64



PREDATOR You've heard about Predator, the Schwarzenegger movie – now you can play the leading role. Take a crack commando unit into the South American jungle to rescue a bunch of trapped diplomats. Should be easy enough...and so it would be, if it weren't for the mysterious alien who keeps on taking out your men.
© 1987 Twentieth Century Fox Film Corp. All rights reserved.



KARNOV Join Karnov, the fire-breathing Russian stongman, on his hazardous quest to defeat the evil dragon Ryu and find the Lost Treasure of Babylon. Karnov is a vast 4-way scrolling game that combines both strategy and fast action in nine challenging levels of gameplay. It is recognised by arcade addicts everywhere as one of the best games of its kind. Karnov also has something special in the way of characters – have you ever been killed by a skeleton on an Ostrich?
© Electric Dreams Software Ltd



COMBAT SCHOOL Konami's arcade hit now for your home micro and already a No. 1 hit. Seven gruelling events featuring the Assault Course, Firing Range, Arm Wrestling and Combat with the instructor himself! Combat school throws down the challenge to the toughest of thoroughbred gamesters.
© 1987 Konami



TARGET RENEGADE Every move you make, every step you take, they're watching you. Fight your way through the precinct – the back alleys, the car parks, fight your way through the villainous community, the skin-heads, the Beastie Boys, the bouncers. This is just the tip of the iceberg on you chilling quest to confront "MR. BIG".



PLATOON Lead your Platoon deep into enemy territory, you can almost feel the humidity, sense the threatening dangers as you encounter the enemy and his many booby traps. Having found the underground maze of tunnels, enter at your peril! Enemy soldiers lunge at you from the murky waters within, but this is the only way you can find vital information. If you come out of this alive, you'll be just one of the few!
© 1986 Hemdale Film Corporation. All Rights Reserved.

SPECTRUM
AMSTRAD
COMMODORE

ocean

CASSETTE
£14·95

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1989

CONTENTS

REGULARS


This month's selection of games covers everything from the born-again craze of skateboarding with *Skate or Die* to the dark side of the future with the *Paranoia Complex*. For the trigger-happy there is WWII action *1942* and for the more genteel readers the aptly-named bat-and-ball game *Batty*.

GAMEPLAN

TIME SCANNER

All the world is a pinball machine and you are the guy who will tilt those features.

NAVY MOVES

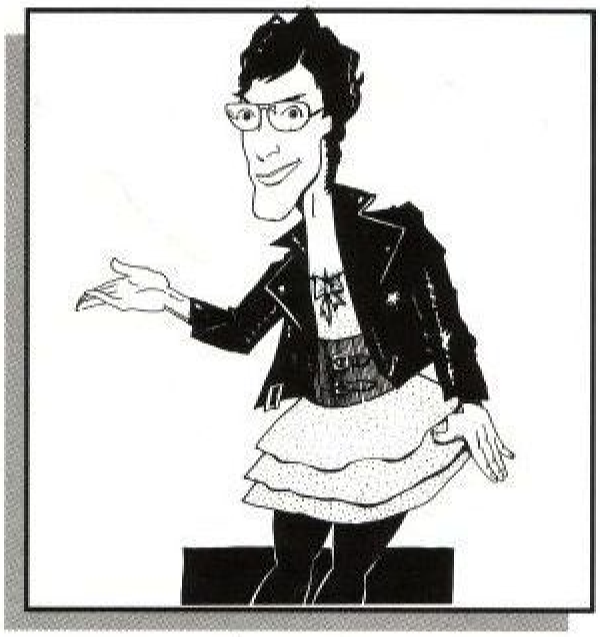
Battle your way through hostile seas to encounter the enemy bases where the bad guys are dying to meet you.

SKATE OR DIE

Challenge Lester to a duel of a lifetime; as the boards clash you know it is do-or-die time.

PLUS

TOP 20



FEATURES

LETTERS



Printers

I have an Amstrad 664, 2160 printer and a Juki 6000 daisywheel printer; the latter I bought to get good letter quality print. Unfortunately I did not get a manual with the printer; as a result I am unable to utilise the printer capability fully without knowledge of the control codes used by the printer.

If any readers have a copy of the printer manual they could lend/sell/copy for me – I would pay any expenses incurred – I would be grateful.

I realise your magazine caters for the broad spectrum of Amstrad users, which I think it does rather well. As a dedicated hardware buff I have a few constructive comments.

You do not publish many hardware projects; those you print seem to be of very simple design. Is this because you consider your readership incapable of complex circuit construction, both with available tools and experience; software-rientated and therefore if they want to build print buffers, fax decoders and weather satellite receiver/decoders to add on to their CPCs they should look in electronics magazines.

Is the answer even simpler? No-one offers you projects like this to publish. If this is the case it might be useful if you suggest the types of project you would like people to provide.

The hardware you review tends to be printers, disc drives and so on. I am not complaining, as I tend to read them regularly but projects like the NOAA Satellite decoders offered by both Maplin Electronics and Circuit Electronics. I would like to read about the various PBC designers for the CPC.

Andy Simmons,
Selston,
Notts.

ACU: Does anyone have a printer manual? So far as complex projects are concerned, if readers want to submit suggestions or projects we will try to accommodate the best.

Advice

I thought your readers would like to know of a problem I experienced with the game *Blasteroids*.

When a joystick splitter is used and the keys are defined with the joystick, you cannot enter the letter 'R' or key 50 because the game uses R as a Restart in the program. You have to play with the keys and a joystick unless anybody knows a way round it. The people at Mirrorsoft were not aware of this problem. Any ideas?

N. Jopling
Doncaster

Citizen 120-D

A few words about my rapturous affair with my marvellous Citizen 120-D printer. I paid £200 for it three years ago when it first came out and I still think it was terrific value even at that, although prices are lower now at £130 plus VAT.

A few points to add to your replies to Paul Easter and R. Jackson in the June issue. Surely boxes can be made with the letter I in caps in any W pro and then saved as a text file and written into when reloaded, or all the information printed then boxes drawn around by hand? We use orange crayons as we are not allowed sharp instruments.

The 120-D makes the 7-bit CPC printer output into 8-bit; it has an in-built thingy to do this so your end bits are not chopped off. I has quadruple-density print also a 216th line feed and it supports NLQ in proportional and joined-up writing and double and too many well-explained niceties in the manual for me to mention. In short, a good bit of stuff for the wordsmith and art package user.

The enormously high-quality ribbon can be re-inked *ad infinitum* and as yet seems to go on and on. I am still re-inking my original – at least Alladdink is. The 120 also has a slide-out adjustable dip switch board, a paper aligner, a free tractor feed and the best manual I have seen for anything.

I would not use an Amstrad printer in a fit as its ribbons do not last five minutes and I use Tasword 6128 and Printmaster (Siren Soft) to produce this kind of stuff. Microdesign by Siren Soft is good for words and pictures á la my logo.

Phil Morley,
Whittlesey,
Peterborough.



NOW IS THE TIME TO TAKE ...
Special Action
5 ALL-ACTION CHART-BUSTERS JAMMED INTO ONE SPECIAL PACK
DRILLER
SOLID 3 Dimensional Landscapes like you've never seen before. Thanks to Freescape – it feels like you're actually there. Interact with weird alien mechanisms, avoiding the Ketars Defences and gain access to the many sections of the Moon, Mitral. Experience Driller and Freescape in action ... "A NEW 3 DIMENSIONAL REALITY!" CRASH.
THE VINDICATOR
"If you've spent hours developing your trigger finger here's a game to put it to the test ... it's all action" CPC SILVER AWARD – CPC COMPUTING "each level has a high standard of graphics ... The Vindicator is an excellent game." CRASH
DALEY THOMPSON'S OLYMPIC CHALLENGE "Excellently animated with some great back-drops ... Daley Thompson's Olympic Challenge is first rate ... another gold medal winner from Ocean." A CRASH SMASH – CRASH
S.D.I.
"The graphics are great with fast flowing backgrounds and smooth, speedy sprites. I now know what I would do if the five minute warning went off ... I would play S.D.I." F.A.B – COMPUTER GAMES WEEK.
CAPTAIN BLOOD
"To sum up – Bloody excellent." "The graphics and sound are excellent ... an intelligent strategy game." YOUR SINCLAIR
Special Action from... ocean
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Errors

I was very pleased to see that my seven 10-Liners has won a place in the June issue under the heading The Pattern Collection but not so pleased for young readers and tyro-typists to find that each of the 10-liners was compounded by errors.

I have every sympathy with letter-writer Bob Adams who writes: Why could you not print from the individual listings as you obviously did with Marion Clarke's *Solitaire* – the slashed 0 is a dead give-away.

The snide statement 'Just between you and me, squire, I can't see why it's called "Two into One"' – whoever wrote that fails to see that it is one program with 'f=f*-1' (DRAGON CURVE) left in and another (C CURVE) with it REM'd out!!

I have not TYPED it out but I do believe ***CURTAINS*** is correct and will work.

Bill Hamley,
Gainsborough.

ACU: Sorry

Not Funny

Well done with your April food conspiracy which triggered endless anguish letters. There is no denying that you deliberately made the April issue into the worst magazine I have ever seen. When things became normal again in the May issue people would think how wonderful it is.

Derek Wong,
Thornton Heath,
Surrey.

ACU: All's well that ends well and stays well. Happy reading.

Weird Science

For about two-and-a-half years we have had a 6128 and we have hours of pleasure as we have explored different ways of using this wonderful machine. A few months ago we connected a cassette player so that we could take advantage of the exciting range of reasonably-priced software. The only disadvantage was that my dad kept complaining about the din when programs are loading, which meant that I could not always use tapes when I wanted to. I have just found a simple solution to the problem which may be helpful to other readers.

I have plugged some stereo headphones into the cassette player which means that I can locate programs at any time without having to worry about the noise it creates. The headphones I have used are cheap – they were a give-away with a pack of cassette tapes we bought. They do not work very well as headphones but they do a fantastic job as a silencer for our equipment.

Gareth Cool,
Aylesbury,
Bucks.

Special effects

I was messing about on my computer one evening, as always, and I keyed-in the listing below. It was supposed to be the beginning of a machine code monitor. When I ran it I was amazed at the effect. I seem to have called &bb19 instead of &bb18. Please do not look at it if you are epileptic or you do not want your eyes to go weird.

```
10 FOR t=&2710 TO &2720
20 READ x$:POKE t,VAL("&"+x$)
30 NEXT
40 CALL &2710
50 DATA 21,0,0,7e,cd,5a,bb,cd,19,
bb,fe,20,c8,23,c3,13,27
```

Willy Walters,
High Wycombe,
Bucks.

ACU: A great discovery.

Action Man

I have just bought an Amstrad CPC6128 and am thoroughly fed up with it, mainly because, since purchasing it, I have heard that Amstrad is one of the worst companies with which to deal.

I am physically disabled, so cannot go to computer clubs or classes. Nor can I afford to pay for postal classes and I had assumed Amstrad was a big enough company to help if I had any teething problems. Not so. I wrote a query enclosing three tapes about a month ago – no reply and no return of tapes.

I decided to send a recorded delivery letter to the management. No reply.

So, the letter in the June magazine, Amstrad Shocker, was of interest and I felt I would write to ask of anyone has ever received a reply from Amstrad? While I still have the Amstrad could you ask if anyone could call to help me sort out games.

The keyboard is faulty – but luckily I deal with Currys/Dixons and Currys has always given me good service, so it is sorting it out for me – getting me another one. In view of the Amstrad policy I am thinking of asking for it to be changed for another make.

R. Conway,
South Ruislip,
Middlesex.

DIY Help

I would like to build the DIY second disc drive. I have the second part but I cannot find the first. I know it is in the April, 1987 issue of *Computing with the Amstrad*. Is any-body willing to part with it?

Colin Taylor,
Enfield,
Middlesex.

To the rescue

I own a CPC 464. After typing-out the game *Solitaire* in the June issue. I cannot get it working. Is it possible to print a PROOF READER in your next magazine?

S.G. Duffield
Norwich

ACU: Help is on the horizon. A proof reader will be provided with every type-in program in the next issue.

Pascal information

Can any readers help me? I have the Oxford Pascal from Systems Software (Oxford) Ltd, 168 Worcester Place, Oxford. Unfortunately this program, for obvious reasons, uses a protection against unauthorised use which consists of a colour control chart, without which it is impossible to use the program. Not having used it for a long time I find that I have lost the chart. I have tried to get in touch with the company but to no avail, so I wonder if anyone can help me? If anyone can please telephone 0924 377836 after 7pm reversing the charges.

Sam Samuels,
Wakefield.

Proof at last

What happened to the proof reader prefix on all the type-in programs? Since the amalgamation of the two magazines, I have not found a type-in with the proof reader listed. Surely I am not the only reader of the magazine who has trouble in getting the programs to run.

Ian Dempster,
Birmingham.

Adventures

I used to read *CPC Computing*, and I like your magazine very much. Can we have Gandalf's adventure pages back? I am a great fan of adventures and even if you cannot do that, at least do a page of hints, tips and solutions.

I do not think solutions would defeat the object of the game, because if you do not want to see the solution do not look.

I was flicking through the really old pages of *CPC Computing* when I saw they used to have a feature called Give your fingers a rest, which meants that you could send for all the month's type-ins and listings on tape or disc. Could we have these back again?

Philip Calver,
Colchester, Essex.

ACU: Gandalf is on his wanderings at the moment but if sufficient interest is shown we will send one of the dwarfs to drag him back.

Accessories

About two-and-a-half years ago I bought Arnold. As a very active photo-journalist I needed his help to make light of a heavy workload. I equipped him with Rombo, *Protext, Promerge Plus* and *Prospell*. I fed him a diet of articles, newsletters and press releases. He digested and regurgitated it via a DMP 2000 and did a fine job.

I should explain that I am a hard taskmaster and like to see a beautifully printed page with good type, striking headlines, neat sub-heads and – if required – tidy graphics. To achieve this I bought a variety of superb software which included *Stop Press, Qualitas Plus, Signwriter and Masterfile III*. My choices were spot on and each program lived up to my expectations. Newsletters took a little time to produce but I think they were a joy to view and read. Anyway, I was proud of them but the trouble with people like me is that we are never satisfied and are always trying to find a way of improving things.

After much thought I decided that Arnold deserved a treat. I sold the ugly but dependable DMP 2000 and bought a Star LC24-10 printer. I could scarcely wait to set it working. Well, I would be getting a much faster printout and, as for the quality, £320 seemed like a bargain.

First impressions were very favourable. My letters looked terrific and I played with the fonts and decorative options until I was able to drive that lovely little Star until it twinkled. Then the problems started. The first disappointment was the Qualitas does not support 24-pin printers and therefore I could not use my favourite fonts, Clarion and Yorkbold. Exit *Qualitas*. The next problem was the wonderful *Signwriter* program and equally good Stop Press, produced distorted screen dumps. Everything was elongated vertically and the pirintouts were very faint.

I can solve this problem partially on Stop Press by stretching the image by a factor of 1 to 1.25 but to get a reasonable density I must print using the NTQ option, which is about as fast as Eddie Edwards' take-off speed Signwriter allows you to select an aspect ratio prior to printing, but I cannot achieve acceptable print density. So exit Signwriter.

I tackled Star Micronics as well as the software producers and, as I understand from their explanations, an over-simplification is that 24-pin printers use only nine pins when in the graphics mode. Add to this the fact that a 24-pin printhead is taller than a 9-pin and you can see there is no solution as far as existing software is concerned. In time, of course, programs will be written to take into account the peculiarities of this new technology. Where does that leave me and does anyone really care?

It leaves me holding the baby. I now own a superb £320, 24-pin printer which has made £100 of software virtually useless. Nobody warned me about this when I bought it. I did not think to ask – why should I? After all, the advertisements said "fully Epson-compatible." Was this misrepresentation and is it in the spirit of the Fair Trading Act? Was *ACU* and the other Amstrad magazine aware of this problem? If so, why did they not warn us?

I would like your comments. Perhaps your experts can offer a simple solution. If not, it would be gratifying to think this letter might prompt other Arnold Users to think carefully before Taking a second mortgage on one of these technological marvels. In the meantime, I will manage.

Vic Barnes
London.

Gratified

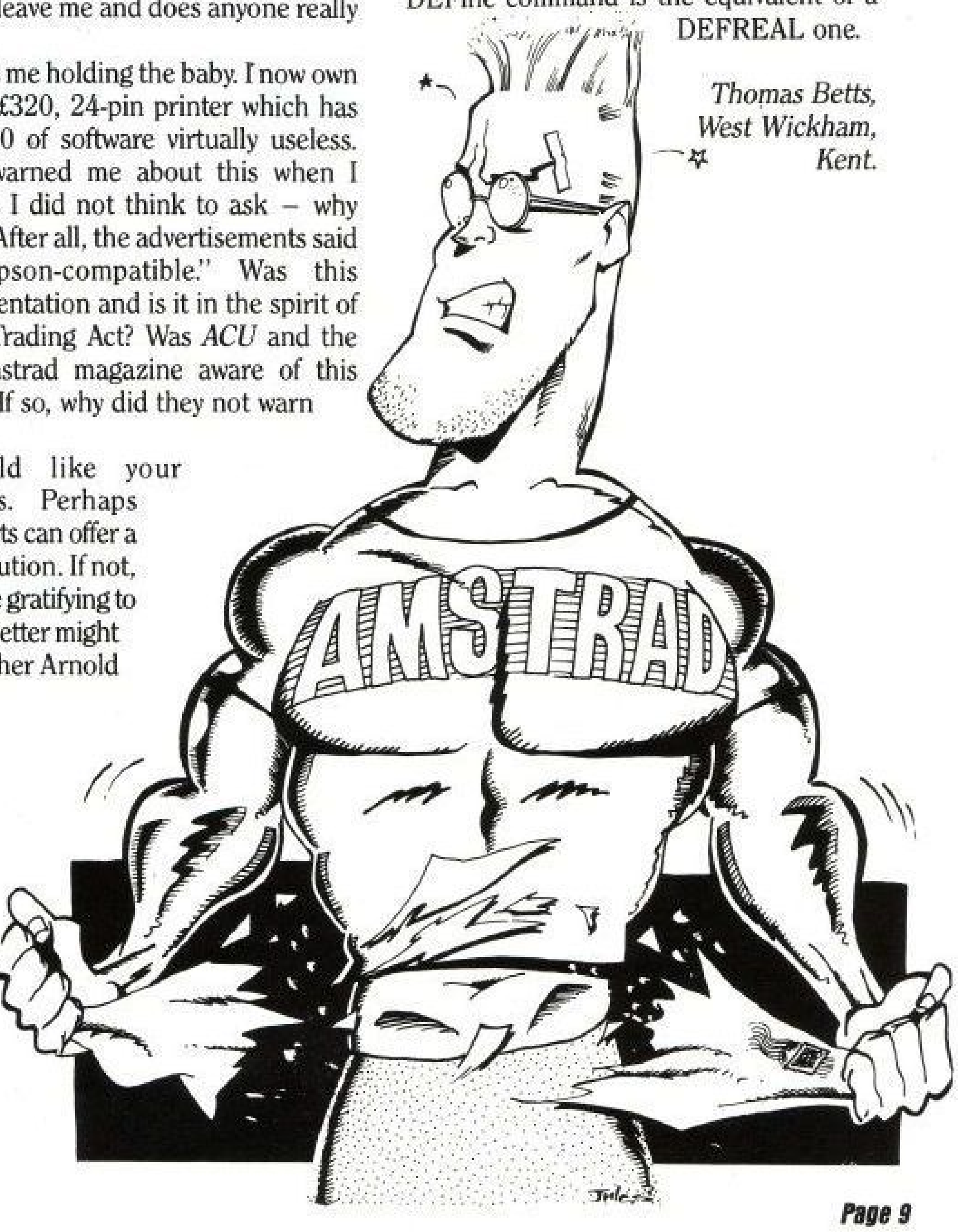
It was gratifying for me to see that my article Type It Yourself was found to be interesting – Letters *ACU* July. It is satisfying to have my question answered. It would please me to be able to thank the person who gave that answer.

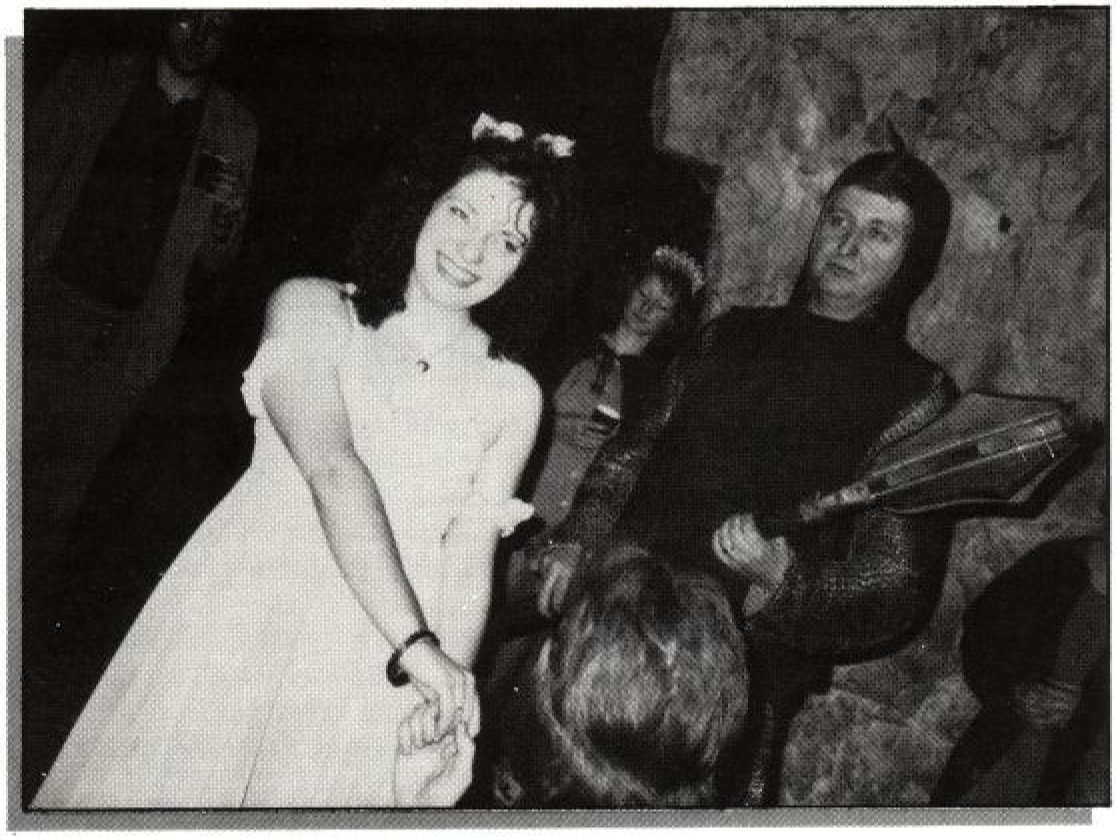
Users of the Type-It-Yourself variables dump – *ACU* May – will no doubt be pleased also, to have all the six Basic tokens for variables, type-marked or default, at their disposal:-

type-marked integer (%) ...	2	0	0
default integer	11	0	0
type-marked string ($) ...	3	0	0
default string	12	0	0
type-marked real (!) ...	4	0	0
default real	13	0	0

The CPS Basic uses default tokens when there has been a previous DEFINT, DEFSTR or DEFREAL command. No DEFine command is the equivalent of a DEFREAL one.

Thomas Betts,
West Wickham,
Kent.





Audiogenic move into game world

AUDIOGENIC has announced its first computer game based on the immensely successful *Lone Wolf* gamebooks. Entitled *Lone Wolf – The Mirror of Death*, the game plunges you into the world created by Joe Dever in which you must use speed, skill and bravery to find the Lorestone, a gem of power which will restore the glory of your murdered peers.

There will be many encounters during your quest, including the Death Pits, the fire-spitting Daemonaks, the murderous Force Dischargers and a plethora of deadly demons. You have only a sword and four chosen Kai disciplines to aid you and only your wits will defeat the last creature, for spurned by the Mirror is an evil carbon copy of yourself, identical in every way.

All this makes for a highly action-packed combat game, or slash-'em-up, which is only to be the beginning of a Lone Wolf software saga. Many more games are likely to follow and, before you know it, there will be as many games as books. Prices will be £14.95 for disc and £9.95 for the cassette version.

Another product designed round the Lone Wolf theme is a new telephone game similar to the incredibly popular *Fist*. *The Fortress Of Doom* can be played by telephoning 0898 300 341, where you will be greeted by mood music before setting out on a quest played in real-time.

The PhoneQuest telephone game system, which it uses, makes use of the latest voice-interactive technology. You have only to speak into the telephone and decisions and battles come your way. One warning, though, for those who may be easily hooked – the calls are charged at 38 pence per minute peak rate and 25 pence off-peak inclusive of VAT.

Also worthy of note are the two books to be released at the same time. Joe Dever's *Legend Of Lone Wolf* is a new series co-written by Joe Dever, of course, and John Grant who, within the pages, chronicle the history and adventures of the Lone Wolf.

Eclipse Of The Kai is the first of the books and tells of the destruction of the Kai warriors, an event leading to Lone Wolf's creation. *The Dark Door Opens*, book 2, follows Lone Wolf in his quest to warn King Ulner of the impending doom.

Both books will cost £2.50 in paper-back format and are available from most good bookshops. They are published by Beaver, an imprint of Arrow Books.

Rick Dangerous

RICK DANGEROUS is a new game to come from Microprose, under the newly-acquired Firebird label. It is a vertically-scrolling climber game with more than a touch of humour. You control *Rick Dangerous* in a cartoon-like strategic game and must travel through four levels of comic fun which span the globe and offer varying tasks. The Amazon jungle, the Aztec temples, Egyptian tombs and dark fortresses of the west must all be negotiated for Rick to raise his popularity to Indiana Jones-like heights.

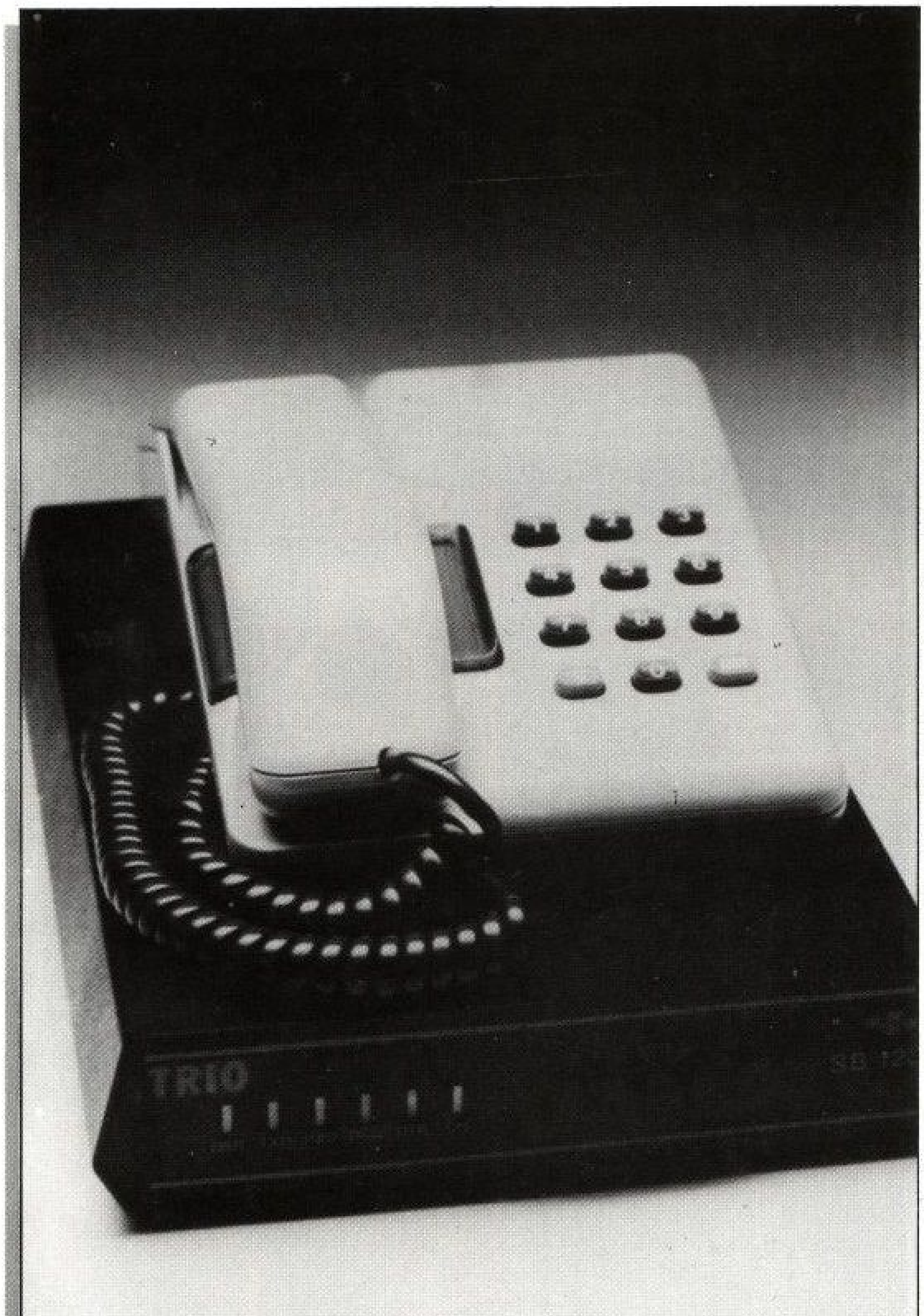
Rick Dangerous should be available how at £9.99 for cassette and £14.99 disc.

Also from Firebird is *Oriental Games*, with four beat-'em-ups featured in one package available in August. Kung Fu, Hollywood Rules, Sumo Wrestling and Kendo are all featured in a gargantuan contest of muscular mayhem.

You can participate in a six-round mini-tournament to find an exclusive 'master' of that particular fighting style, or alternatively you can play against the computer or a friend in a practice bout. Once you are a master of all four styles you can then, and only then, compete in the grand tournament to find a 'Grand Master' from 24 participants.

Another Firebird launch available in mid-August will be *Action Fighter*, a conversion of the successful Sega coin-op. It is a tough, vertically-scrolling shoot-'em-up set in the midst of heavy battle and is divided into four sections, each featuring a different kind of landscape.

You will start on a motorcycle which you must steer through the first level but it is not such an easy task as it sounds. Passing enemy vehicles and an enemy helicopter flying overhead all aim to thwart your progress but luckily you can avoid them and deal them their own kind of medicine, with weapons provided by the passing Sega van. Also by collecting floating letters you can transmute into more powerful methods of transport, thus allowing your task to become a little easier.



More modems from Dowty

THREE Hayes-compatible modems from Dowty, one of the leading U.K. manufacturers of datacomms equipment, are now available from Action Computer Supplies with stunning reduction. The Duo-Dual standard error-correcting modem, conforming to CCITT V21 and V23 standards, is offered at £269 compared to the RRP of £340. Its features include an automatic selection of tone or pulse dialling, XON/XOFF of CTS flow control and non-volatile memory.

The trio is offered at a more expensive £467 but is still £128 less than its recommended retail price. It is a multi-function, error-correcting modem conforming to V21, V22 and V23 standards and also features SPAR error detection and correction, asynchronous or synchronous operation at 1,200bps and automatic speed detection.

Also available is the Quattro multi-standard modem, conforming to V22bis, V22, V23 and V21, with Bell standard options. It is available at £546 but, compared to its retail price of £795, the reduction is staggering. Features include SPAR and MNP error-correction, automatic answering, speed detection, dialling and log on, and a constant speed serial interface.

For more information contact Action Computer Supplies, Abercorn Commercial Centre, Manor Farm Road, Wembley, Middlesex HAO 1WL, or telephone 0800 333 333.

Batman

OCEAN SOFTWARE, following previous movie successes such as *Robocop* and *Short Circuit*, has announced two new games to be released at the same time as their cinematic counterparts. *Batman, The Movie* is a film which could scarcely be avoided and has already been heralded as the movie of 1989. The film, directed by Tim Burton and starring Michael Keaton and Jack Nicholson among other well-known stars, tries to delve more into the darker side of the man who dresses as a flying rodent and, as such, offers in any sombre views of heroism. The plot was written by Sam Hamm, whose credits include many Batman comic strips for DC comics and the game promises to follow this very closely.

Nightbreed, however, is a far more wholesome cookie as it is the latest film from Clive 'Hellraiser' Barker. Based on his book *Cabal*, it leads the viewer through a tale of heroism and romance but not without Barker's brand of perverse horror twists. The monsters are still awesome, the special effects are still explicit, but perhaps the plot is a little more palatable than his directional debut. Again the Ocean game captures the subterranean world in which Nightbreed is set, and the plot is one and the same.

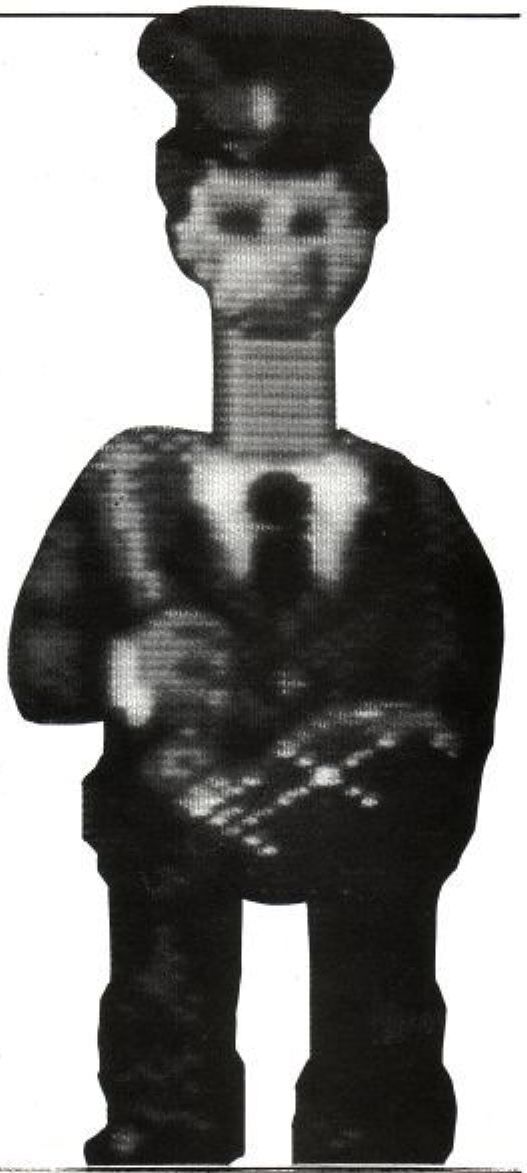
Easy living

FOR those who have problems with disc organisation, Greyhound Software markets a utility which could help immensely. Discbase CPC is a disc-file database which offers many features, including easy entering of disc catalogues to make the database, and three comprehensive viewing formats for files and disc data by a list of files, of discs, and page-at-a-time CATs read instantly from memory.

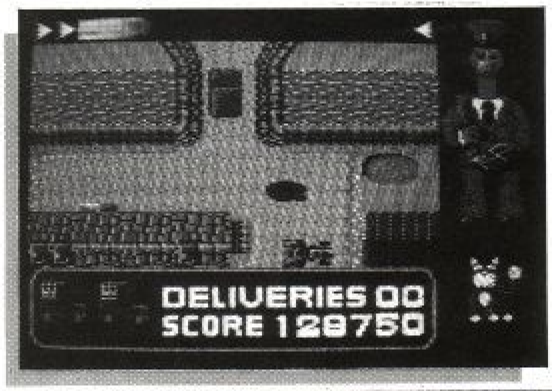
Tony Carter, one of the two programmers of Discbase and Director of Greyhound Software with his son, explains why it was so essential to release Discbase. "We became involved in this because my Protext files and the odd Basic programs kept getting lost. We then bought Fido from Pride Utilities, mainly to see what it did and whether it worked. It was so slow at searching that we felt it was still worth trying to do better. I have also tried one of the CP/M disc organisers but found it rather basic."

Discbase is available for £9.95 from Greyhound Software, Kennel Cottage, Hockley Lane, Wingerworth, Chesterfield, Derbyshire S42 6QQ. Telephone enquiries should be directed to 0246 235233, Mon-Sat 6-8pm.





Return of Postman Pat



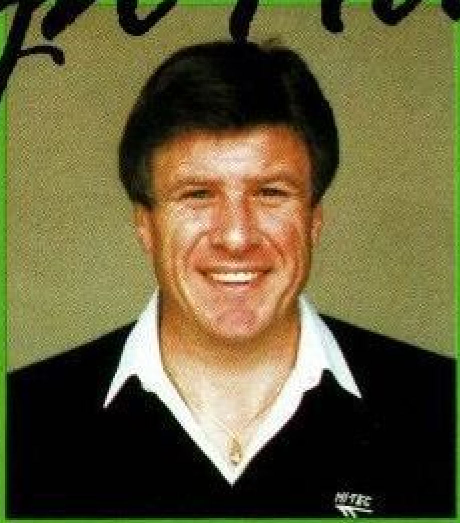
HISTORY is in the making with the first original budget game to be licensed from a recognised figure. *Postman Pat* should now be available from Alternative Software at £1.99 for the cassette version.

Playing the prestigious delivery man, you must pick up parcels and letters in your home town of Greendale and deliver them to their destinations. Not only do you have to complete this mammoth task but there are other tasks which need completing, such as rounding up sheep and the delivery of prescriptions for Miss Hubbard.

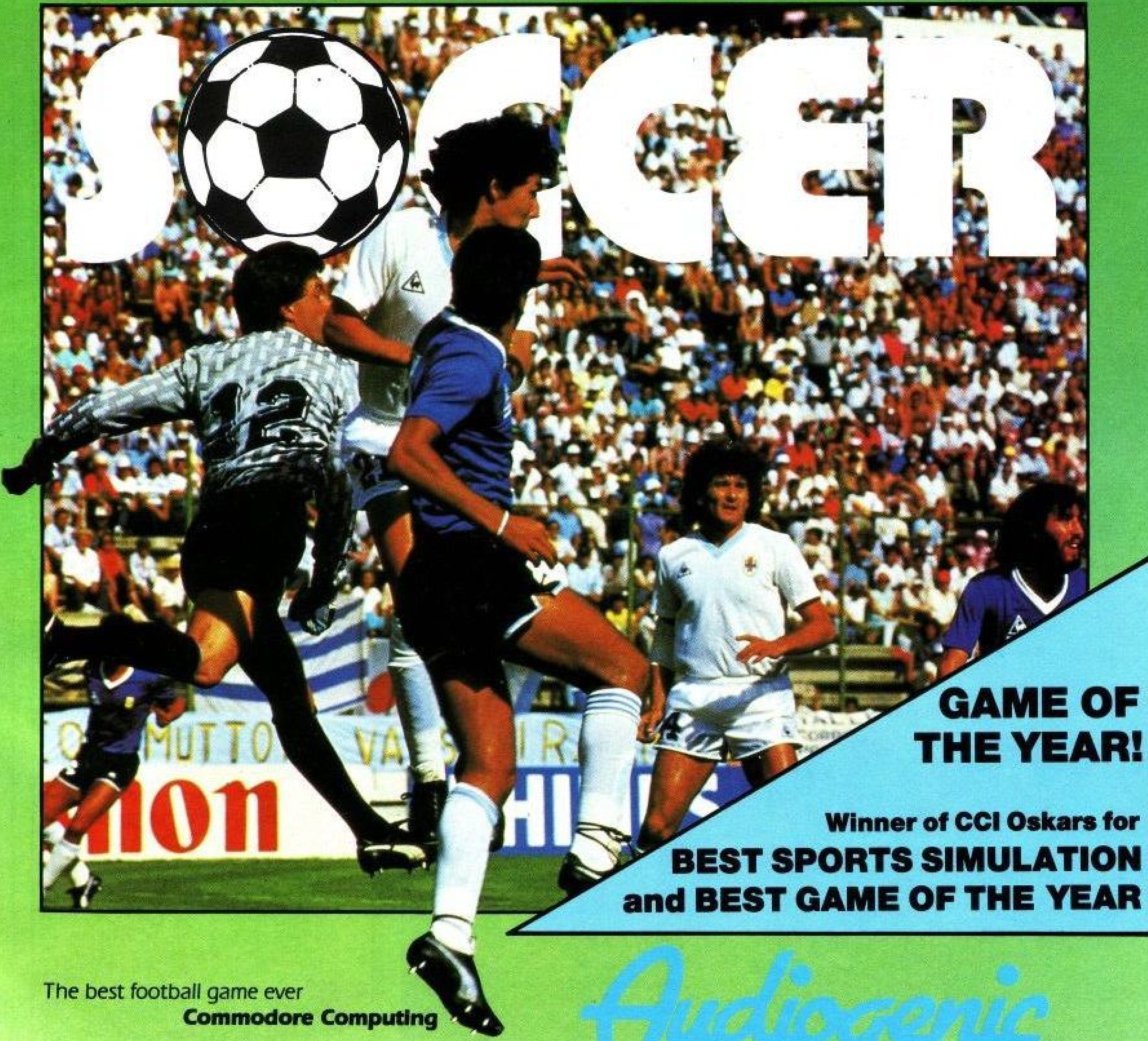
Although the game is simple it is maddeningly addictive and there are two versions from which to choose, an easy one for younger players and a more dificult one for those who wish to stretch their playing skills.



Emlyn Hughes



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VISA



Are you bored with the blank space on the wall? Well, thanks to those very helpful people at Activision you now have a chance to win the original artwork from the *Time Scanner* game, signed by the artist and framed. To win this coveted prize all you have to do is answer the three simple questions below and send us your answers.

1. What did pinball originate from?

a) Bagatelle
b) Chess
c) Billiards

2. Which is the odd one out?

a) Nudge
b) Tilt
c) Fast Forward

3. Who sang the song Pinball Wizard?

a) Bros
b) Roger Daltry
c) Elton John

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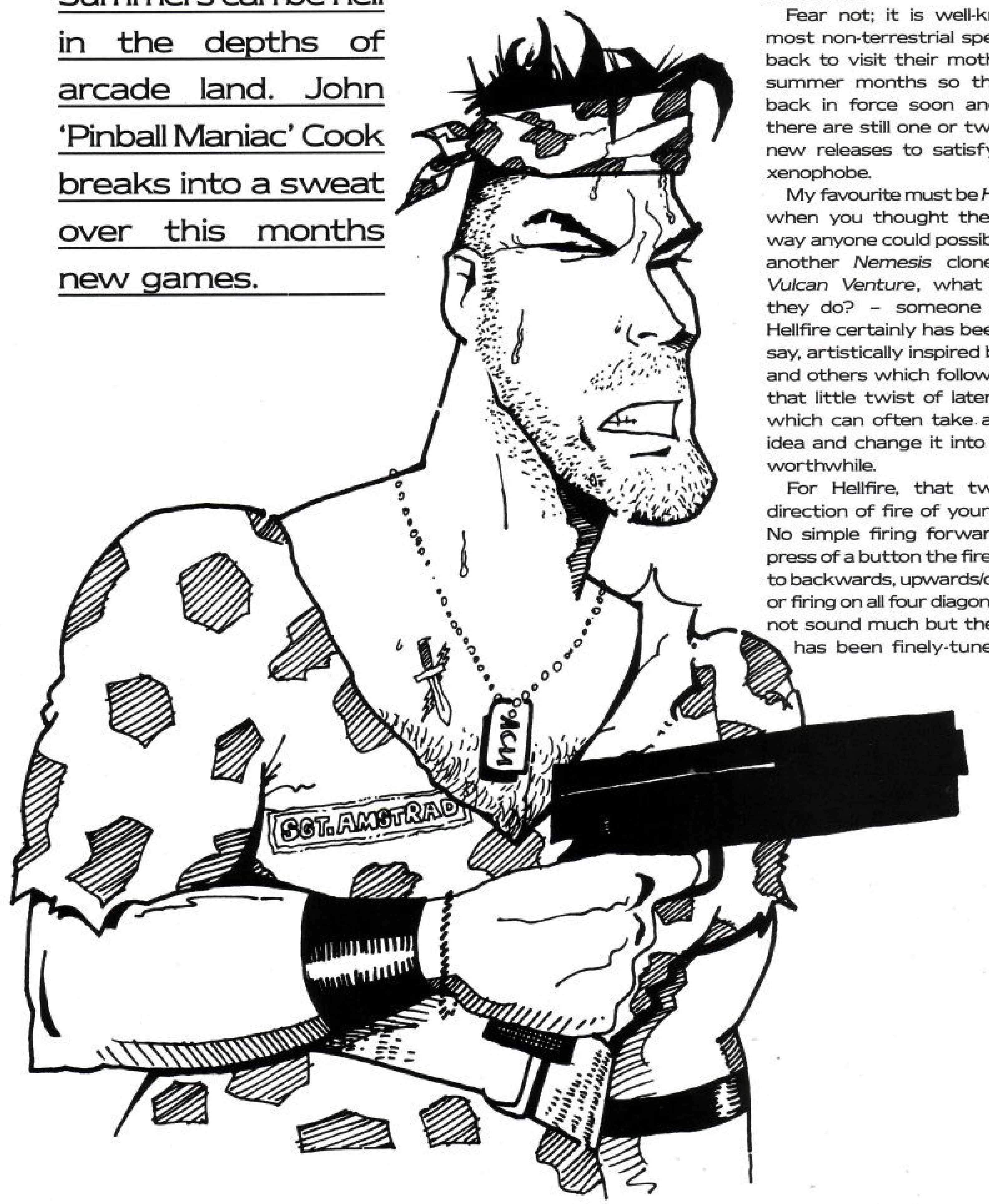
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Life hots-up in the Combat Zone

Summers can be hell in the depths of arcade land. John 'Pinball Maniac' Cook breaks into a sweat over this months new games.

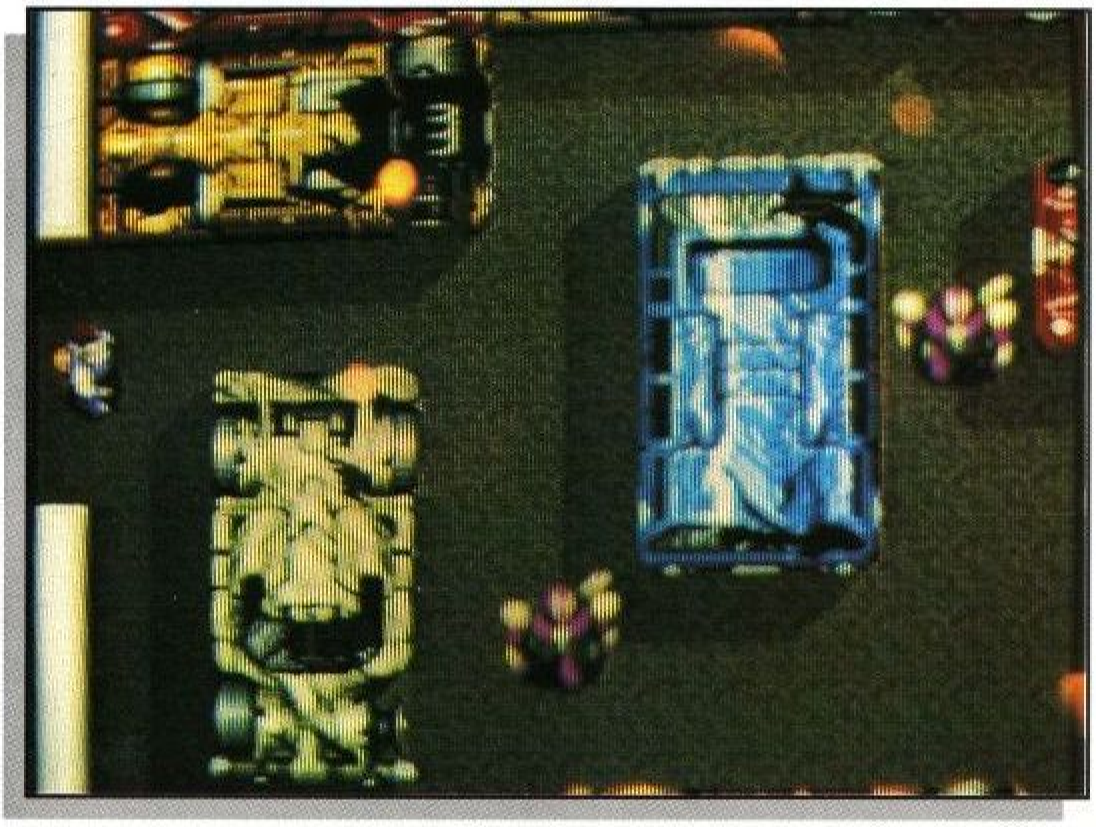


Singing, all together now – "Summertime. . . . and the living is easy." Easy? Not here in the Combat Zone, where aliens are fought back from world domination, if not on the beaches, then certainly at the end of the pier. To look at the latest batch of games you might think that aliens had become an endangered species. We have wrestling games, shooting games, mind games, cutsie games; what about the straightforward alien bash?

Fear not; it is well-known that most non-terrestrial species travel back to visit their mothers in the summer months so they will be back in force soon and, besides, there are still one or two excellent new releases to satisfy the true xenophobe.

My favourite must be *Hellfire*. Just when you thought there was no way anyone could possibly produce another *Nemesis* clone – after *Vulcan Venture*, what else could they do? – someone does. Yes, Hellfire certainly has been, shall we say, artistically inspired by *Nemesis* and others which followed but has that little twist of lateral thinking which can often take an ordinary idea and change it into something worthwhile.

For Hellfire, that twist is the direction of fire of your spaceship. No simple firing forwards. At the press of a button the fire is changed to backwards, upwards/downwards or firing on all four diagonals. It might not sound much but the gameplay has been finely-tuned so that



CRACK DOWN: Drive me to the river.

changing between directions of fire is not just desirable – it is essential. Fumbling for the correct combination under pressure in extremis piles on the adrenaline.

The gameplay is familiar if you have ever played games of this type; there are speed and weaponry power-ups and a constant right to left scroll but is very well-balanced in speed and variety of aliens. Definitely a PCB to look for in the next few months.

Regular readers will know I am keen about pinball. One thing about pins is that the makers of the things, the brand if you like, tend to have different feels to them. Stern tables of the early 1980s are my favourites but that is because I like plenty of targets at which to aim. Obviously not many other people did because Stern went out of business in the mid-1980s.

Another famous name in the pinball trade is Bally and one of its tables, *Truck Stop*, had me occupied for a few hours in the depths of a London arcade a few weeks ago. The theme of this is, as usual, heavily macho. You are supposed to be driving your big rig round the freeways of the U.S.A. and have to make sets of rollovers by making various ramp shots to 'visit' each city – Chicago, Denver, Dallas, New York, Los Angeles. Get all of them and the city lights lit and the machine almost explodes.

With two sets of flippers on the playfield the upper set is placed to make a second set of ramps, Truck Stop is a fun table – not too difficult, not too complicated and one you can get into reasonably quickly. If you happen to pass one on your travels, I recommend you try it.

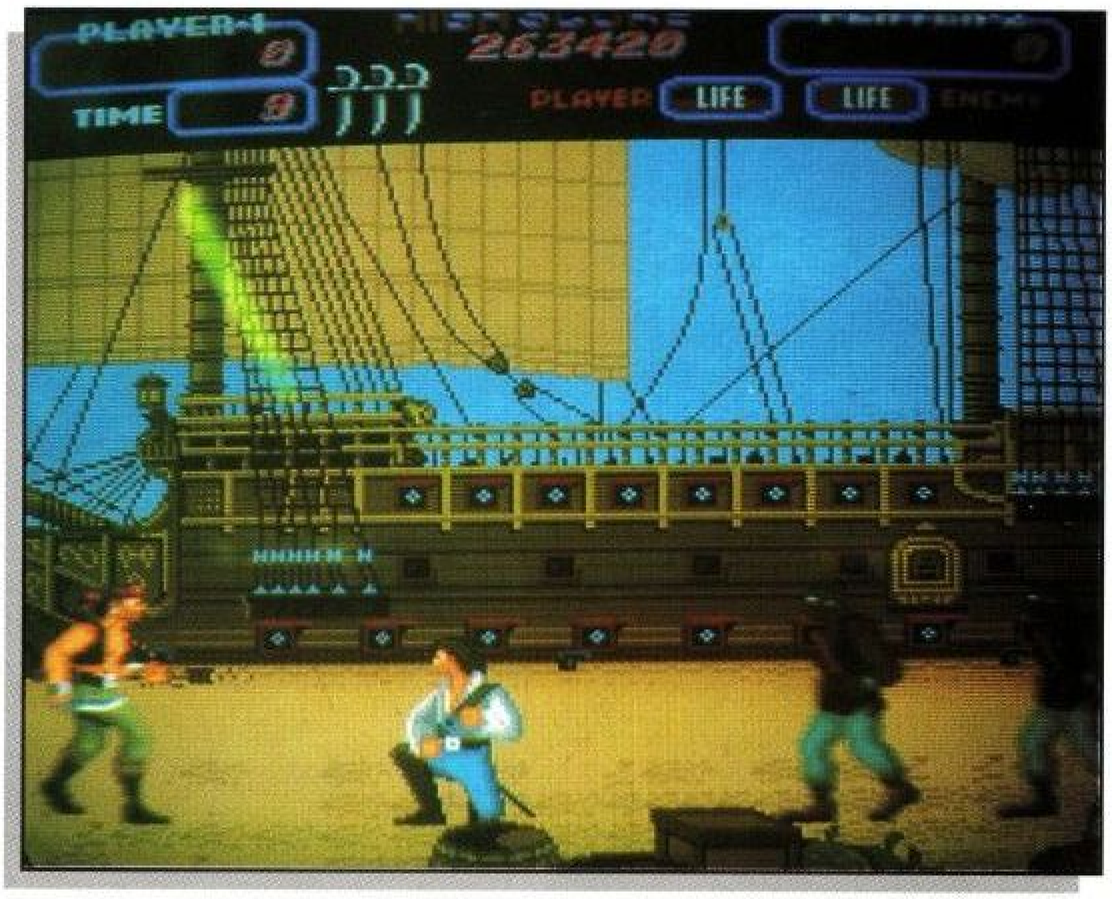
Do you remember I mentioned the Sega System 24 last month and the latest release for it, *Crack Down*? This month we bring you System 24, the circuit board.

I finally managed to obtain a reasonably full technical specification of the system, and, as you can imagine, it has a little more than 64K and a single Z-80. It has two CPUs, both full 16-bit variants of the 68000 family, the 68010. On top of that there is 1,360K of RAM available and a 256K ROM full of hardware routines available to the programmer.

There is hardware pixel scrolling, of course, and hardware windowing. Sprite handling – how about 2,048 16 by 16 pixel sprites? How about 4,325 colours displayable on-screen at once out of a palette of 32,768? The FM, eight-channel sound system scarcely needs mentioning, does it?

Although Crack Down is the best game on the system to date, *Gain Ground* was not bad but this looks like a system with a hardware specification which will stand up for two years at least and, as programmers get used to it, the games can only get better and better.

Capcom launched a new generic board about nine months ago in a blaze of publicity. Estimates of development time and costs ranged from $5 million and two years through to $2 million and five years. Who cares? It is producing games



BUCCANEERS: Nice ship, pity about the game.

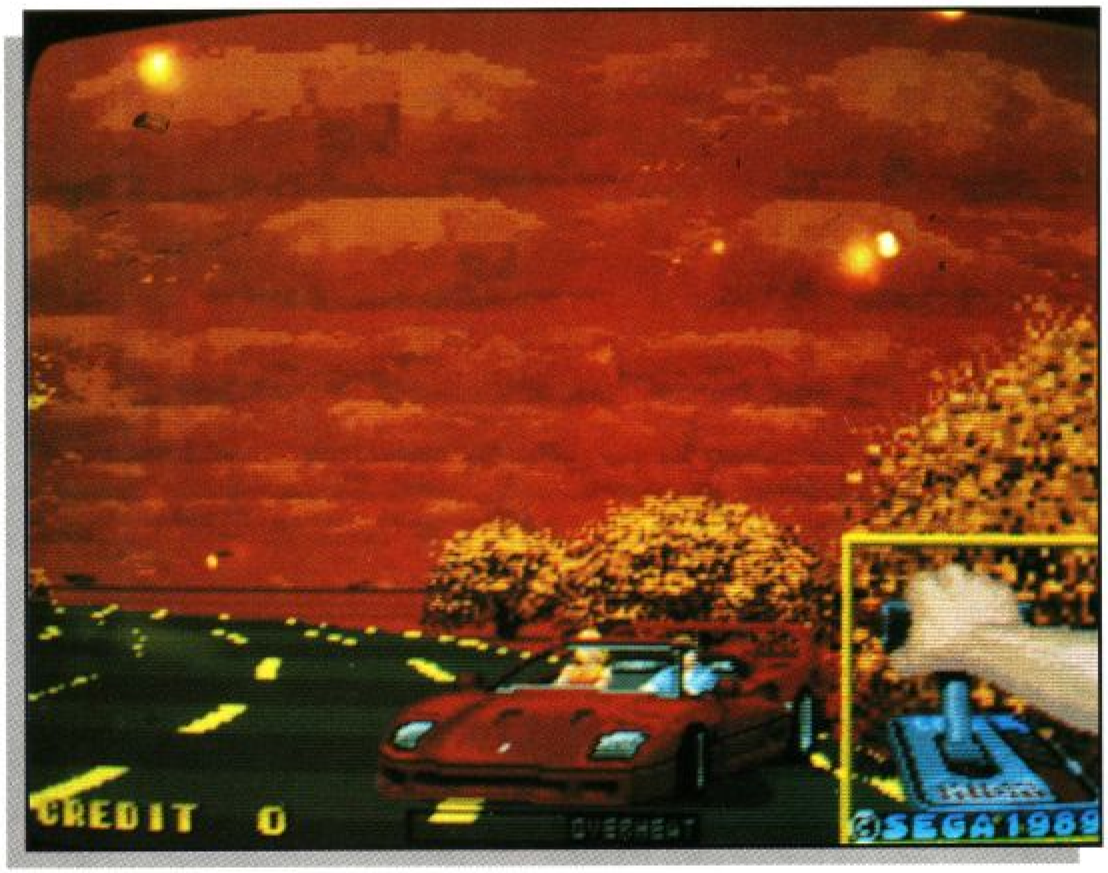
like *Forgotten Worlds*, now a conversion from the U.S. Gold stable, and *Ghouls and Goblins*, a strangely unsuccessful follow-up to the original *Ghosts and Goblins*.

Now another game from it is *Dynasty Wars*. We are talking Chinese Dynasties here, the ones which do not just seem to last hundreds of years – they really do.

At the beginning of his bash you choose one of four characteristics. They are presented with the usual hilarious Japanese/English translations. Kuan Yu, for instance, is "Not only a great warrior who has defeated many famous, but also educated and well-mannered." Once you get into the game you have an interesting right/left, semi-perspective view of a battlefield through which you have to cream your way on horseback.

There are plenty of sprites, plenty of well-designed cannon fodder. You have magical ability as well which can summon fire, landslides and stuff. It is all done very well and competently but, even though it is a technically-impressive piece of work, somehow it failed to inspire so much as I hoped. It is certainly not a dud but treat this one warily.

Back to the vids. *Tetris*, the home computer game, made it to Tetris the arcade coin-op, did it not? It is the number one coin-op in the home of coin-ops, Japan. I suspected that, if successful, Tetris might spawn a new craze in vids, the puzzle game. Well, the first of them appears to have arrived.



TURBO OUTRUN: Faster than ever.

"Never let it be said we do not tell you about the bad as well as the good. Here is one to really avoid- Buccaneers."

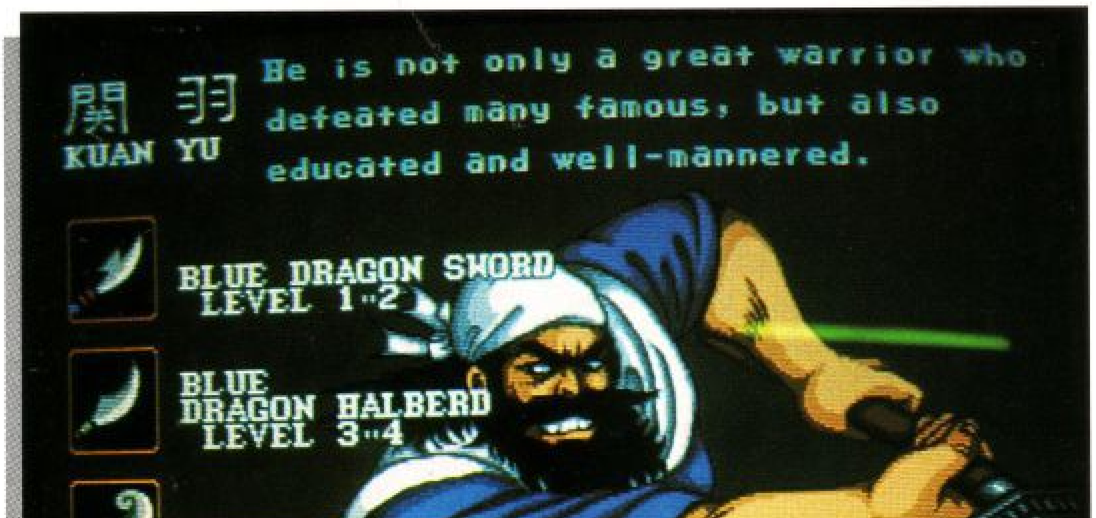
I do not know what it is called – the title screen is in characters rather than English – but it appears to be a version of that mega-hit from Activision, *Shanghai*.

It is a kind of patience, I guess. The game is played on a single screen full of Ma Yong titles and like the old card game *Pairs*, you have to designate pairs of titles and they are then removed from the screen. It is not particularly simple, though – the titles are aligned in rows and you can nominate titles only at the end of a row and you are doing it against a time limit. It will be interesting to see if it catches on.

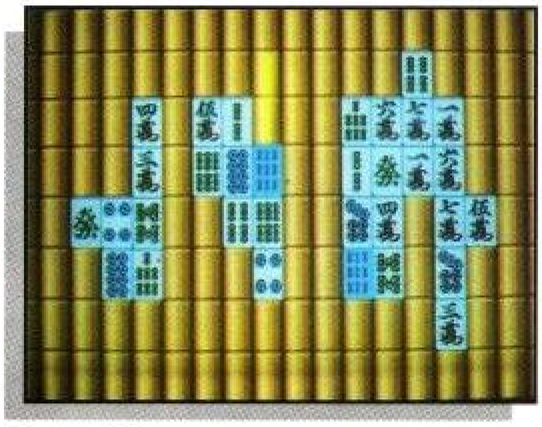
Never let it be said we do not tell you about the bad as well as the good. Here is one really to avoid – *Buccaneers* from a rather obscure firm Duintronic. You control a pirate sprite and have to do the business in a extraordinarily lacklustre hack and slay job. Save your 10 pence pieces for better things and condemn this straight to Davey Jones locker.

Here is something silly for summer and a fun way to get your parents into the arcades. It is well-known that anyone over the age of 30 is allergic to vids so get them in with any one of the silly games doing the rounds.

Last year there was *Sweet Licks*. This was a unit with a padded hammer and around 12 holes. Up



DYNASTY WARS: Hate over the ages.

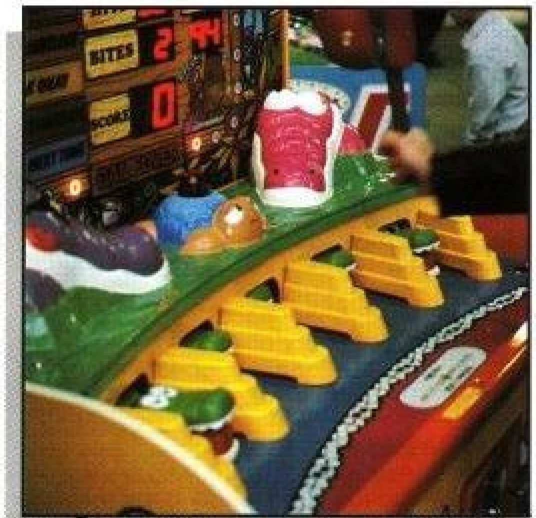


Crazy stuff.

from the holes pop gormless-looking moles and you had to bob them on the head before they ducked. At the start of the game they appeared only in ones and twos but fives had you flailing around all over the place. It also is the first coin-operated amusement game I ever got my mother to play.

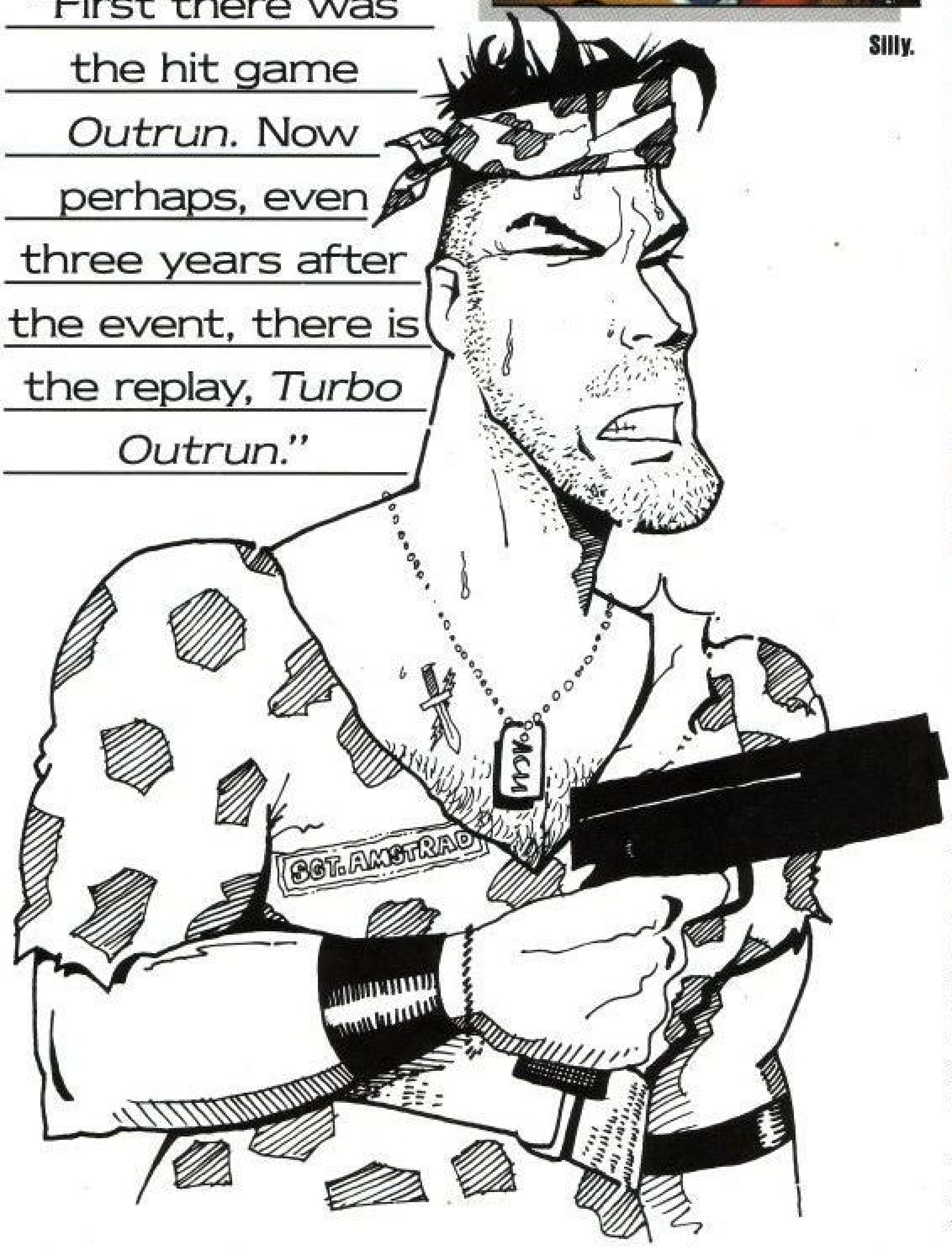
Now there is another, very much in the same mould, except it is crocodiles which are creeping out of caves to bite you on the hand. These kinds of games really are fun and leave the participant panting with effort and the audience – somehow there is always an audience – rolling on the floor with mirth.

First there was the hit game *Outrun*. Now, perhaps, even three years after the event, there is the replay, *Turbo Outrun*. The graphics are better than before, by miles. The sound is terrific. Additional features include a turbo button on the gear lever which gives you an extra hit. Also, when completing a level, you have the option to add extra to the car. The gameplaying public wants more than this. Take my advice on this one; if you have to play a Sega driving game this summer, make it *Power Drift*.

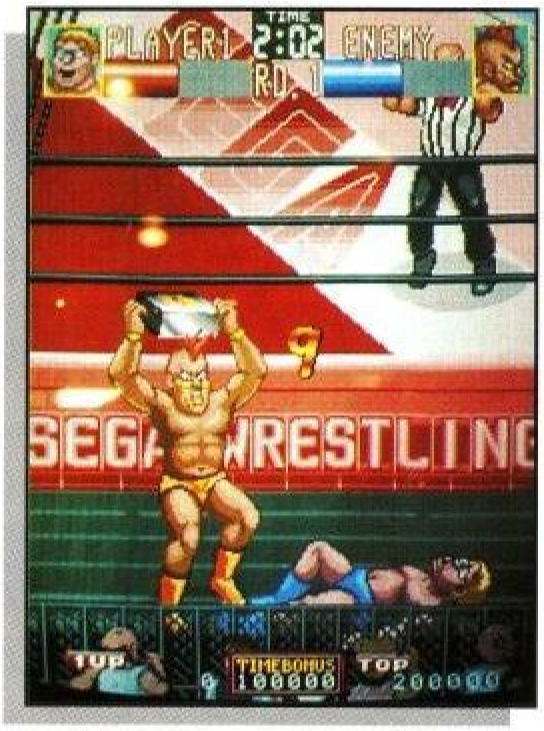


Silly.

"First there was the hit game *Outrun*. Now perhaps, even three years after the event, there is the replay, *Turbo Outrun*."



You might think that *Professional Wrestling* is silly in the U.K. and you would be correct but in the States, heavily-muscled nutters strut round rings in equally heavily-sequined posing pouches. They shout at each other and then proceed to add to the existing brain damage by flinging each other about the place – and it is big-time, prime-time TV to boot. This must explain the rash of wrestling games which has arrived on our shores.



Take that, boy.

Wrestling Superstars from Technos, *Champion Wrestler* from Taito, but I like best *Wrestle War* from Sega. It is a complicated game, as you can see from the controls; it has huge sprites but, more important, manages to capture the pure theatre and silliness of it all, while being a fun, playable game. It is not my cup of tea but combat fans will go for it.

Next time, an in-depth review of what is already being called the hottest PCB around, *Golden Axe* from Sega.

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PRINTERS

All printers listed have a ten inch (A4) carriage, are Epson compatible, and feature friction and tractor feed mechanisms for continuous or single sheet paper. All prices include the necessary cable

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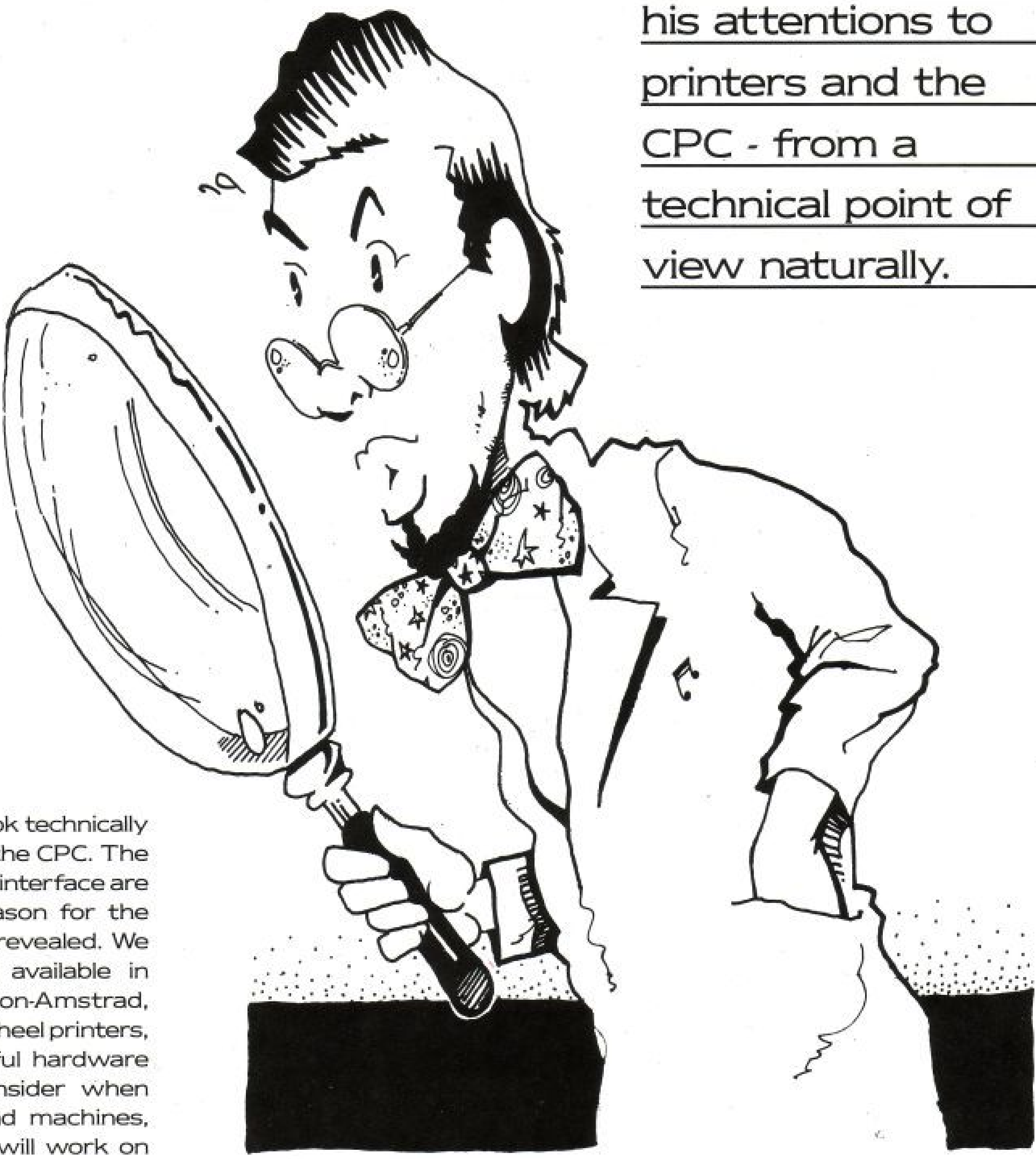
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PROPRIETOR M.J. COOPER

MICRO-SCOPE

Researcher about town Trevor Cummings, turns his attentions to printers and the CPC - from a technical point of view naturally.



This month we look technically at printers and the CPC. The printer port and interface are examined and the reason for the missing eighth bit are revealed. We examine the options available in terms of Amstrad, non-Amstrad, dot matrix and daisywheel printers, along with other useful hardware and see what to consider when looking at second-hand machines, whether or not they will work on the CPC.

We cannot examine individual printers, though, as there are so many different ones but there is a general overview of the options. In addition, as promised last month, we have an 8-bit printer port project which all D.I.Y. enthusiasts can build for less than £5. Budding machine code programmers for the project should look at the software as it is an example of intercepting and re-routeing the CPC firmware routines.

Inside the computer each character, such as the letter A, has an 8-bit binary code - A = 01000001. When it is moved, e.g., from memory to memory, screen, tape, disc drive and the printer, the eight wires of the computer data bus, D0 to D7, have this code on them. A 1 = high voltage and a 0 = low voltage. With D0 on the right and D7 on the left, the character A would have D0 as a high voltage, D1 as low, D2 as low, and so on. There are two ways to send such data to a printer, one bit at a time - D0 followed by D1, D2, and so on is serial transmission and printers employing the method cannot be used on the CPC without the addition of a serial interface.

The other is the parallel method which sends all eight bits along eight wires simultaneously. As well as the data lines other control lines are either needed or are useful. The Centronics interface is a full set of parallel data and control lines. Most machines with this interface apply at least some of the signals to the same connector pin numbers, giving a good degree of standardisation.

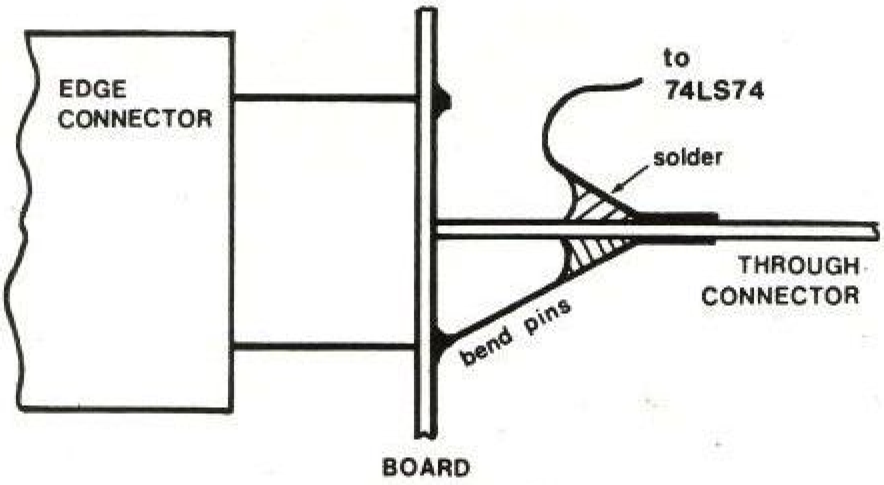
Since the CPC uses this system, any printer with a Centronics interface should work whether it is an Amstrad one or not. The varieties include 80- and 135-column dot matrix machines, daisywheel printers and even colour plotters. So long as it has Centronics signals the printer should be satisfactory. I must point out that a number of printers, daisywheels in particular, have a few different characters for some of the codes. They can even have characters which are not on the keyboard. Good word processors provide the option to alter character codes to cure such problems. Modifying the CPC Translation Table is another way.

The standard Centronics connector has 36 pins but the CPC has only 34. There is a good reason for the difference but it does not really concern us. Pin 1 to pin 1 aligns the signal correctly so that the BUSY, STROBE and data lines are matched with the printer. This can be seen clearly in chapter seven of your computer manual. Note that pins 18 and 36 are missing from the diagram, since the computer does not have them, but the pin numbers match those of the printer.

Some Centronics printers and computers have fewer pins but still employ the same signals. A comparison of the printer and computer pinouts will show what to connect to where. Apart from the seven data bits the only two lines used by the CPC are the STROBE, pin 1, which the computer pulses low to tell the printer that valid data is available on the data lines, and BUSY, pin 11, which the printer sends to say "I am not ready for any more yet." All handshaking is done with these two.

Unusually, the CPC outputs seven data bits instead of eight because the original DMP1 printer cannot make use of the eighth bit even if it were there. Most printers, however, have a second character set or graphics characters above code 127 and a 1 on the eighth bit (D7) is needed to get at them.

Unfortunately we cannot just open the machine and connect D7 of the data bus to D7 of the printer port because the data lines of the port are not connected to the internal bus. They come straight from an



"The standard Centronics connector has 36 pins but the CPC has only 34."

8-bit latch in the CPC and the eight bits consist of seven data bits and one STROBE line. We could change the software to turn the STROBE line into the eighth bit but where would we then find the necessary STROBE pulse? Alas, seven data bits and 1 STROBE are all we are given.

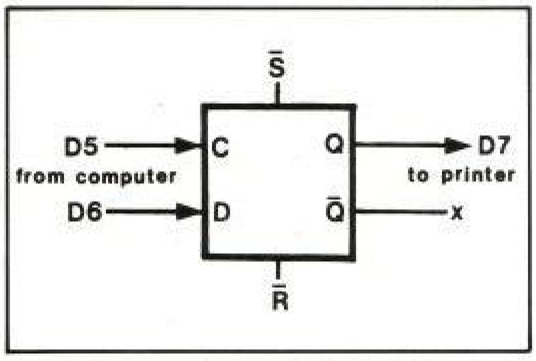
All is not lost. KDS Electronics produces an 8-bit printer port which plugs on to the 34-way printer outlet and, after running a small piece of software, is invisible to the user. If a high character is sent to the printer it gets there and, if the printer has a top set, it will be printed.

To check if your printer has such a set, find the self-test routine in its manual. It is usually activated by turning it on at the same time as depressing a switch. My machine needs the line feed pressed. This will print-out all the printer characters, top set included. The KDS 8-bit port sells for £18.95 and is available from mail order advertisers in this magazine.

We have already seen what this device can do so we will go straight into how it works. We need to create the eighth data bit (D7), set it to 0 or 1 depending on the character code and leave it set until the printer has received all the characters. We do it by intercepting the firmware routine MC WAIT PRINTER and running automatically our piece of eighth bit setting software. Then we jump back to MC WAIT PRINTER, which will continue as normal and, among other things, change D7 into the STROBE signal.

The method is simple and uses one-half of a dual D-type flipflop chip which sends the output Q to the same logic level as input D when input C goes from low to high. It keeps Q at that level until the next time C goes high. If you look at the logic diagram you will see that data lines D5 and D6 are fed from the computer printer port to inputs C and D and the created D7 is output from Q and fed to the printer.

A 'shifty' bit of thinking will reveal that, if we shift the original D7 of the character to D6 and make D5 go low

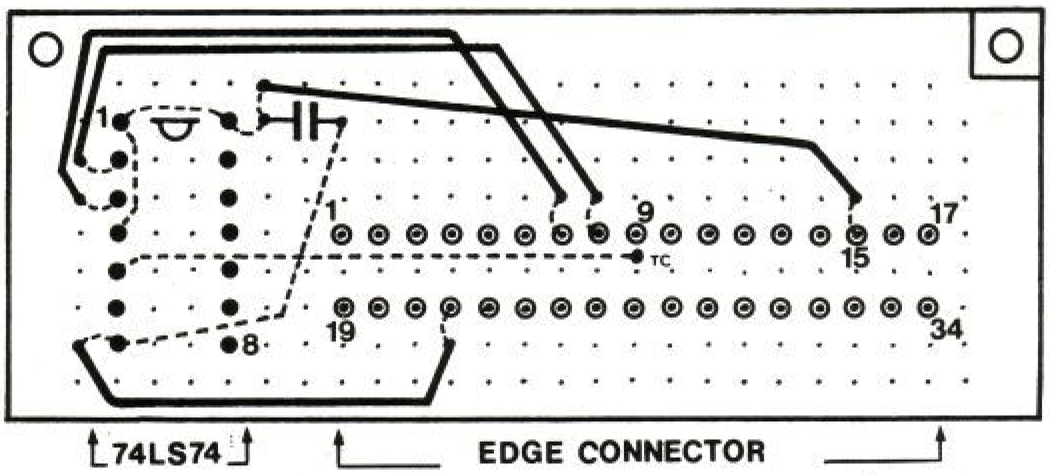


and then high, the original D7 will be latched at Q. Bar Q is always the logical opposite of Q and is not connected. Bar R and bar S are Reset and Set pins and are tied high to prevent them operating.

The listed program needs to be typed-in and saved. Run it whenever the printer is to be used. Lines 10 and 20 replace the start address of MC WAIT PRINTER in the computer jump table, with the start address of our machine code routine. The rest of the program pokes our machine code into a small unused area of memory starting at &BF10.

Do not type this is. It is the data of the Basic program:

When this program is reached the original character to be sent to the



printer is in the accumulator with D7 intact.

Edge connector 34-way	MicroStyle EC34W	90 pence.
Through connector 34-way	MicroStyle TC34W	£2.
Capacitor	Maplin YR75S	8 pence.
Wire Maplin	BL92A	28 pence.

If there are probems obtaining any parts, MicroStyle will supply the full kit for £4.50 including postage.

Maplin Electronics, PO Box 3, Rayleigh, Essex SS6 2BR. Tel: 0702 554161.

MicroStyle, 212 Dudley Hill Road, Bradford, Yorkshire BD2 3DF. Tel: 0274 636652.

Tansy – see local Yellow Pages under Electrical Supplies Retailers.

The diagrams are straightforward with just a few points to mention. One is that no 5V power is available from the printer port, so we are powering the flipflop from inside the computer by connecting 5V to pin 15 of the computer printer connector.

This means opening the machine by turning it over, taking out the six screws, turning it back, taking out the two disc drive screws and lifting the top. A wire can then be soldered between pin 27 of the 50-way expansion connector and pin 15 of the 34-way edge connector and the machine closed again. Both pins are on top of the board and are easy to reach.

The data line D7, from Q, goes to the printer on pin 9 of the through connector – marked TC in the layout diagram – but pin 9 from the computer is grounded, so do not connect that pin to the through connector; cut it off after soldering it to the board. In the same way we do not want the 5V going to the printer, so solder it to the board and cut off the rest of the pin. The board will need to be cut down to allow room for large peripherals on the expansion socket. Leave the through connector until last or soldering wires can be difficult.

In the layout diagram wires on top of the board are solid, those underneath are dotted. The chip and edge connector fit on the top. The half moon shape indicates the notch or dot on the chip. Both through and edge connectors are polarised, so be sure to fit them the correct way round. The capacitor – two short parallel lines – may be placed any way round.

1: saves the character and flags on the stack.

2: rotates the accumulator right placing D7 (8th bit) in D6.

3: printer port address into register B.

4: re-set D7 and D5 to 0 leaving D6 intact. When D7 goes out the printer reads it as STROBE. As it is inverted along the way we send a 0 to keep it high.

5: output the accumulator to the printer port. This makes sure that C on the flipflop (D5) is low. If it is not in a low state it certainly cannot go high. High followed by high will not trigger it.

6: set D5 to 1 leaving D6 and D7 intact.

7: output to printer port sending C high and latching D6 in Q. The eighth bit is now latched.

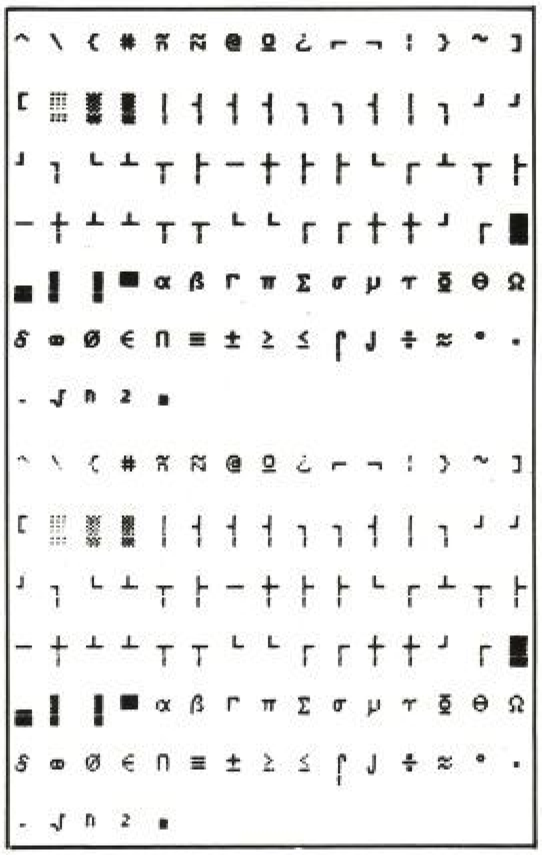
8: bring back the original character and flags from the stack.

9: jump to MC WAIT PRINTER. This is the usual address found in the jumpblock which we have replaced.

When built, the 8-bit port slides on to the computer printer port and the printer cable attatches to its through connector. Both the 34-way through connector and the 34-way long pin-edge connector are non-standard parts and cannot be found. We have a solution to the problem. MicroStyle will supply specially-made parts to all who want them.

The machine code is located at &BF10 to &BF1F which is an area of memory not generally used and which will survive a re-set. If strange things occur with the 8-bit port attached it may be that some software also wishes to use that area. If this problem occurs, lowering HIMEM by 16 bytes and locating the code above it would solve it. The Basic program would need to be changed to perform this task and the new start address would need to be poked into &BDF1/2, low byte first.

It will not be long before you wonder what happens if you connect your printer to the



computer, without the port, and 5V is sent down the line. I have specified connecting the 5V to pin 15 and, on all the printers I have checked, including a Citizen, a Sharp and a Samleco, this pin is unused and unconnected. I cannot guarantee it but it seems to be standard, so check your printer pinouts to make sure.

All that is left now is for everybody to dust their soldering irons and to get stuck into the printer's extra characters. We would be interested to receive any clever programs which use the port for printing pictures or whatever. Problems with particular software and solutions would also be welcome.

10 LINERS

This month's selection was chosen to relax, entertain and strain the old brain box.

PUZZLE BY BJORNAR GRANDALEN

This little mind boggler will keep you occupied for weeks. A four by four grid is drawn on the screen with a shape drawn in it. After hitting a key the shape disappears, only to reappear a short time later jumbled. You must restore the shape to its former dimensions by moving the rows and columns of the grid, achieved by pressing the keys from A to H.

Eight shapes of varying complexity ensure that many hours of lateral thinking will be required before you can say you have conquered the program.

```
1 ok=1:L=1:FOR z=1 TO 8:READ w(z):NEXT:DIM P(143):FOR x=16 TO 143:READ P(x):PRIN
T:NEXT:MODE 1:CALL &BC02:PEN 3:PAPER 0:INK 1,0:INK 2,13:INK 3,26:g$=CHR$(10)+CHR
$(8):INPUT"Board(A-H):",a$:a$=UPPER$(a$):IF a$>"@"AND a$<"I" THEN L=ASC(A$)-64:D
ATA 18,17,9,15 [F7]

2 CLS:WINDOW#1,12,28,4,20:PAPER#1,1:CLS#1:WINDOW#1,13,27,5,19:PAPER#1,2:CLS#1:FO
R x=8 TO 19 STEP 4:LOCATE 13,x:PAPER 1:PRINT SPACE$(15):NEXT:FOR x=16 TO 28 STEP
 4:FOR y=4 TO 20:LOCATE x,y:PRINT" ":NEXT y,x:t=0:FOR y=1 TO 4:FOR x=1 TO 4:b(y,
x)=P(L*16+t) [74]

3 ENV 1,15,-1,6:t=t+1:NEXT x,y:INK 0,w(L):BORDER w(L):SYMBOL AFTER 32:SYMBOL 48,
0:SYMBOL 49,255,255,255,255,255,255,255,255:FOR x=13 TO 28 STEP 4:PEN 3:LOCATE x
,3:PRINT"11":NEXT:FOR x=5 TO 20 STEP 4:LOCATE 11,x:PRINT"1";g$;"1":NEXT:PEN#1,3:
DATA 11,6,3,4 [D7]

4 FOR y=1 TO 4:FOR x=1 TO 4:WINDOW#1,9+(4*x),11+(4*x),1+(4*y),3+(4*y):PAPER#1,2:
PRINT#1,BIN$(b(y,x),9);:NEXT x,y:FOR x=1 TO 4:PEN 2:PAPER 0:LOCATE 9+(x*4),2:PRI
NT CHR$(68+x):LOCATE 10,1+(x*4):PRINT CHR$(69-x):NEXT:DATA ,,,,,484,457,,,295,79
,,,,, [DA]

5 CALL &BB18:INK 3,13:FOR Z=1 TO 10+L*5:c=1+INT(RND*8):PEN 3:GOSUB 6:NEXT:ok=0:I
NK 3,26:SOUND 1,0,60,15,1,,31:SOUND 2,0,70,12,1,,9:PAPER 0:SPEED INK 6,6:DATA ,8
4,273,,84,,,273,273,,,84,,273,84,,485,455,455,461,365 [32]

6 a$=UPPER$(INKEY$):IF a$>""THEN IF ASC(a$)>64 AND ASC(a$)<73 THEN c=ASC(a$)-64:
PEN 3:IF c<5 THEN LOCATE 11,21-(c*4):PRINT CHR$(138);g$;CHR$(138):GOSUB 8:GOSUB
10 ELSE LOCATE 9+((c-4)*4),3:PRINT CHR$(140);CHR$(140):GOSUB 9:GOSUB 10:DATA ,,3
65,365,, [F3]

7 IF a$=CHR$(127)THEN RUN ELSE IF ok THEN c=1+INT(RND*8):IF c<5 THEN GOSUB 8:RET
URN ELSE GOSUB 9:RETURN:ELSE IF ok=0 THEN 6:DATA 365,359,455,455,335,84,448,448,
273,292,84,273,73,292,273,84,73,273,7,7,84,273,484,457,84,484,256,64,457,295,4,1
,79 [46]

8 k=5-c:t=b(k,4):b(k,4)=b(k,3):b(k,3)=b(k,2):b(k,2)=b(k,1):b(k,1)=t:FOR h=1 TO 4
:WINDOW#1,9+4*h,11+4*h,1+4*k,3+4*k:PRINT#1,BIN$(b(k,h),9);:NEXT:LOCATE 11,1+4*k:
PRINT"1";g$;"1":o=RND:RETURN:DATA 84,295,79,273,484,457,26,50,295,79,152,176,9 [
9D]

9 k=c-4:t=b(4,k):b(4,k)=b(3,k):b(3,k)=b(2,k):b(2,k)=b(1,k):b(1,k)=t:FOR h=1 TO 4
:WINDOW#1,9+4*k,11+4*k,1+4*h,3+4*h:PRINT#1,BIN$(b(h,k),9);:NEXT:LOCATE 9+((c-4)*
4),3:PRINT"11":o=RND:RETURN:DATA 56,56,36,72,56,56,288,1,224,392,4,164,484,457,1
37,290 [51]

10 v=0:u=-1:FOR z=1 TO 4:FOR o=1 TO 4:u=u+1:IF b(z,o)=P((16*L)+u)THEN v=v+1:NEXT
 o,z:IF v=16 THEN INK 2,26,13:INK 3,13,26:CALL &BB18:RUN:ELSE RETURN:ELSE RETURN
:DATA 295,79,74,64,35,14,256,485,407,215,461,377,176,152,380,125,50,26,317,359,4
70,467,335 [22]
```

EYE BY D. WOOD

Multi-coloured mania on your Amstrad as the program entertains with a series of colourful starbursts followed by an eye of many colours.

```
10 ON BREAK GOSUB 80 [E5]

20 MODE 0:g=0:i=1:r=0:INK 0,0:INK 1,15:INK 2,11:INK 3,6:INK 4,8:INK 5,18:INK 6,2
4:INK 7,5:INK 8,26:INK 9,19:INK 10,5:INK 11,17:INK 12,7:INK 13,22:INK 14,0:PAPER
 0:GRAPHICS PEN i:BORDER 0:GOTO 80     [CC]

30 FOR q=1 TO 15:i=INT(14*RND)+1:x=INT(639*RND):y=INT(400*RND):s=INT(240*RND)+20
:p=INT(15*RND)+1:GRAPHICS PEN i:FOR a=1 TO 360 STEP p:N=INT(800*RND)+30:DEG:PLOT
 x,y:DRAW x+s*COS(a),y+s*SIN(a):NEXT a:NEXT q [22]

40 i=0:x=320:y=200:d=190:s=300:FOR c=1 TO 14:t=INT(2*RND)+3:FOR a=1 TO 360 STEP
t:DEG:PLOT x,y:DRAW x+s*COS(a),y+d*SIN(a):NEXT a:d=d-14:s=s-16:i=i+1:GRAPHICS PE
N i:NEXT c [2D]

50 GRAPHICS PEN 0:x=320:y=200:FOR a=1 TO 360 STEP 3:DEG:PLOT x,y:DRAW x+13*COS(a
),y+13*SIN(a):NEXT a [E2]

60 GRAPHICS PEN 8:x=320:y=200:FOR a=1 TO 360 STEP 3:DEG:PLOT x,y:DRAW x+8*COS(a)
,y+8*SIN(a):NEXT a [34]

70 FOR waste=1 TO 4000:NEXT:GOTO 30 [85]

80 CLS:GRAPHICS PEN 5:PLOT 1,1:DRAW 639,1:DRAW 639,399:DRAW 1,399:DRAW 1,1:PEN 1
:LOCATE 7,5:PRINT"E Y E":PEN 2:LOCATE 2,12:PRINT"1..run   2..list" [7B]

90 a$=INKEY$:IF a$="1" THEN CLS:RUN 30 [BE]

100 IF a$="2" THEN MODE 1:LIST ELSE 90 [B9]
```

SOUTH OF HEAVEN BY DAVID HALL

Having escaped from Hell, Percy is in the death room south of Heaven. By bouncing between the top and bottom walls Percy can accumulate points which, when reaching 2,000, will set him free. To complicate matters, touching either of the side walls or the two moving crosses results in Percy losing the game. Control is left and right with joystick and Space bar to start a new game.

```
10 MEMORY 9999:l=10000:FOR m=1 TO 5:READ a$:FOR t=1 TO LEN(a$) STEP 2:POKE l,VAL
("&"+MID$(a$,t,2)):l=l+1:NEXT:NEXT:l=20000:FOR m=1 TO 3:READ a$:FOR t=1 TO LEN(a
$) STEP 2:POKE l,VAL("&"+MID$(a$,t,2)):l=l+1:NEXT:NEXT [A2]

20 SPEED INK 10,10:INK 1,12,24:INK 5,15:MODE 0:INK 0,0:BORDER 0:PAPER 0:CLS:PEN
11:PAPER 3:FOR t=1 TO 20:PRINT CHR$(140);:NEXT:PEN 3:PAPER 11:LOCATE 1,23:FOR t=
1 TO 20:PRINT CHR$(140);:NEXT:PAPER 0:PEN 7:PRINT "* SCORE *" [35]

30 PLOT 0,48,8:DRAWR 0,334:PLOT 636,48:DRAWR 0,334:PAPER 0:PEN 12:PRINT "+ South
 Of Heaven. +";:PEN 4:CALL 10000:LOCATE 7,12:PEN 15:PRINT "THE  END":i$=INKEY$:W
HILE i$=" ":i$=INKEY$:WEND:WHILE i$<>" ":i$=INKEY$:WEND:GOTO 20 [F5]

40 DATA 21F4C1225898AF32B48C3E28325A983E02325B9832A28C2164C022A08C21F8D522A38C3E
0132A58CCD4927CDEB27CD5C283AB48CFE00C018F221409C060736302310FB21180CCD75BB21469C
06077ECD5ABB2B10f9C9CD692721419C7EFE39200536302318F63418DA3E07CD5ABB3E05010000CD
32BCCD97273E01 [26]

50 DATA 32B48C2A5898113050CDA7271E040EC806C80010FD0D20F81D20F3C90E16E506081A7723
1310FAE1CD26BC0D20F0C92A58982BCD29BC2262987EFE0020B0110900197EFE0020A72A629811F0
0019CD29BC7EFE002098110900197EFE00208FC9DD21A08CCDF627DD21A38CDD6601DD6E00DD7E02
FE012032110700 [0B]

60 DATA 1906163600CD26BC10F9DD6601DD6E002B7EFE0028043E02182FDD7500DD7401CDBA27DD
6E00DD660111D04EC3A72706163600CD26BC10F9DD6601DD6E00110800197EFE0028063E01DD7702
C9DD6601DD6E002318C4CDBA273AB48CFE00C03E4bCD1EBB2805CDD12818083E4aCD1EBBC4EE283A
5A98FE0120043E [79]

70 DATA 021806FE9120083E01325B98CD66273A5B98FE012802180218162A58980608360023l0FB
2A5898CD26BC3A5A983C181B2A58980615CD26BC10FB060836002310FB2A5898CD29BC3A5A983D32
5A9818142A58981107001906163600CD26BC10F92A58982B22589811204EC3A7272A589806163600
CD26BC10F92A58 [94]

80 DATA 982318E5,00000000F300000000000051A200000000000011220000000000F0F0F0F0000
00050F0F0F0F0A0000050F0F0F0F0A00000F0C0F0F0C0F00000F0C0F0F0C0F00000E0C0D0E0C0D00
050E0C0D0E0C0D0A050F0F0F0F0F0F0A050F0F0E0D0F0F0A050F0F0E0D0F0F0A050F0F0C0C0F0F0A
050F0F0C0C0F0F0 [90]

90 DATA A050F0D0F0F0E0F00000F0C0E0E0E0F00000F0C0C0C0C0F00000F0C0C0C0C0A0000050E0
E0F0D0A0000050F0F0F0F0000000000050F0F0000000CCCCCCCCCCCCCCCC88008800004400448BCC88
0C0C44CC4488CC880D1E44CC4488CC880D1E44CC4488CC880D1E44CC4488CC880D1E44CC4488CC88
0D1E44CC4488CC [7D]

100 DATA. 880D1E44CC4488CC880D1E44CC44CCCC880D1E44CCCC8800000D1E000044880C0C0D1E0
C0C44880D0F0F0F0F1E44880D0F0F0F0F1E44880D0F0F0F0F1E44881C3C2D1E3C3C448800000D1E0
00044CCCC880D1E44CCCC88CC881C3C44CC4488008800004400 44CCCCCCCCCCCCCCCC [BB]
```

HELL AWAITS BY DAVID HALL

Percy Pumpkin has been taken to Hell for being such a good boy. Can you help him avoid the Devil's minions? This joystick-only game requires you to avoid as many inverted crosses a possible but the left and right controls are reversed to add new dimensions of complexity. Gaining 1,000 points saves Percy from Hell. Note that touching the walls is also fatal.

```
10 INK 1,12,24:MEMORY 9999:l=20000:FOR k=1 TO 3:READ a$:FOR t=1 TO LEN(a$) STEP
2:POKE l,VAL("&"+MID$(a$,t,2)):l=l+1:NEXT:NEXT:l=10000:FOR k=1 TO 6:READ a$:FOR
t=1 TO LEN(a$) STEP 2:POKE l,VAL("&"+MID$(a$,t,2)):l=l+1:NEXT:NEXT [A1]

20 GOSUB 100:FOR t=1 TO 22 STEP 2:LOCATE 20,t:PEN 9:PRINT b$;:LOCATE 20,t+1:PEN
12:PRINT b$;:NEXT:PRINT:PEN 3:PRINT "* SCORE *";:PEN 7:PRINT "+   Hell  Awaits
 +";:PEN 10:CALL 10000:PEN 15:LOCATE 3,13:PRINT ".. Game Over ..":FOR t=1 TO 500
0:NEXT:GOTO 20 [5B]

30 DATA 00000000F300000000000051A200000000000011220000000000F0F0F0F00000050F0F0
F0F0A0000050F0F0F0F0A00000F0C0F0F0C0F00000F0C0F0F0C0F00000E0C0D0E0C0D00050E0C0D0
E0C0D0A050F0F0F0F0F0F0A050F0F0E0D0F0F0A050F0F0E0D0F0F0A050F0F0C0C0F0F0A050F0F0C0
C0F0F0A050F0D0 [81]

40 DATA F0F0E0F00000F0C0E0E0E0F00000F0C0C0C0C0F00000F0C0C0C0C0A0000050E0E0F0D0A0
000050F0F0F0F000000000050F0F000000000054FCCF8A0000000005400008A0000000005400008A00
00000054A8458A0000000000A8450000000000000A8450000000000000A8450000000000000A8450000
00000000A84500 [5B]

50 DATA 0000000000A84500000054FC00A84500CF8A5454FCA845CF8A8A5400000102000008A5400
00102000008A5400000102000008A5454FCA845CF8A8A54FC00A84500CF8A000000A845000000000000
54A8458A0000000005400008A0000000005400008A0000000054FCCF8A,AF32A08C325D98326298219
DC22258983E13 [55]

60 DATA 325a983E3B325B98CD3E27CDC528CD6B27CDBB273AA08CFE0028F0C921409C0607363023
10FB21180CCD75BB21469C06077ECD5ABB2B10F9C921419C7EFE39200536302318F63418DD3A6298
FE0020233C326298ED5FFE8E30FAFE1B38F63C472100C0CD26BC10FBCD29BC2263983E013265983A
6598FE4428133C [6B]

70 DATA 3265982A6398CD3F292A639823226398186 0AF326298CD5B272A639818633A5D98FE0020
1E3C325D98ED5FFE4430FAFE0D38F63C32609826C06F3E013261982D225E983A6198FE8D282DC602
3261982A5E980608360023l0FB2A5E98CD26BC0608360023l0FB2A5E98CD26BCCD26BC225E9811D0
4E183DAf325D98 [68]

80 DATA Cd5b272A5E98113050182E3E07CD5ABB3E05010000CD32BCCD41283E0132A08C2A589811
3050CD51281E020EC806C80010FD0D20F81D20F3C90E16E506081A77231310FAE1CD26BC0D20F0C9
2A58982BCD29BC224C9A06057EFE0020AE232310F72A4C9A06067EFE0020A0CD26BCCD26BCCD26BC
CD26BC10ED2A4C [DA]

90 DATA 9a1109001906067EFE00C22328CD26BCCD26BCCD26BCCD26BC10EC2A4C9A11F00019CD29
BC06057EFE00C22328232310F6C9CD64283AA08CFE00C03E4BCD1EBB2805CD2329180A3E4ACD1EBB
2803CD33293E48CD1EBB20192A58980608360023l0FB2A5898CD26BC22589811204EC351282A5898
11F00019CD29BC [81]

100 DATA cd29BCCD29BC060836002310FB2A5898CD29BC18D82A58981107 0019CD3F292A58982B1
8C82A5898CD3F292A58982318BC06163600CD26BC10F9C9:INK 0,0:BORDER 0:INK 5,15:PAPER
0:b$=CHR$(203):MODE 0:LOCATE 1,22:FOR t=0 TO 9:PEN 9:PRINT b$;:PEN 12:PRINT b$;:
NEXT:RETURN [D0]
```

HOT CITY LIGHTS BY DAVID HALL

Crank up the stereo to full volume and run this program. Kaleidoscopic patterns pulsate before your eyes at one of 50 speeds.

```
10 CLS:INK 1,14:INK 2,26:PEN 2:PRINT "+++ Welcome to the 'Hot City Lights' +++"
[6F]

20 PEN 1:INPUT "Speed (1-50)";s:IF s>50 OR s<1 THEN 10 [EB]

30 g$=CHR$(203):PEN 0:MODE 1:PAPER 0:INK 0,0:BORDER 0 [99]

40 a=(RND*12)+1:b=(RND*12)+1:m=m+1:c=a [A2]

50 IF m>s THEN m=1:FOR t=1 TO 3:INK t,RND*27:NEXT [C0]

60 PEN RND*4:IF RND*10>1.5 THEN PEN 0 [A6]

70 GOSUB 80:a=b:b=c:GOSUB 80:GOTO 40 [FD]

80 LOCATE 8+a,b:PRINT g$:LOCATE 33-a,b [FB]

90 PRINT g$:LOCATE 8+a,25-b:PRINT g$ [D8]

100 LOCATE 33-a,25-b:PRINT g$:RETURN [81]
```

KILL 'EM ALL BY DAVID HALL

Shoot-'em-up time as you blast the marauding aliens out of the sky. Control moves your ship left, Copy moves your ship right, Space bar shoots, or use joystick. Reach 2,000 points and you have saved the Earth.

```
10 DATA 0000000C0C000000000000C0F0F0C000000040F0F0F0F08000058F00F0FF0A40000B53FA5
5A3F7A00047FFF2F1FFFBF28047FF[illegible]BF280D75FF251AFFBA1E0D1A300F0F30251E0D0F0FCC
CC0F0F1E0D0F4E98CC8D0F1E0D0F4[illegible]0F1E0D0F4ECCCC8D0F1E0D0F4ECCCC8D0F1E0D0F4ECC
CC8D0F1E040F0F [68]

20 DATA CCCC0F0F28040F0F0F0F0F0F28000D0F0F0F0F1E00000D0F0F0F0F1E0000140F0F0F0F28
0000003C0F0F3C000000000003C3C000000000000458A000000000000CFCF000000000000458A0000
00000045658B8A000000000000458A000000000009ACFCF4700000000000458A000000004565CFCF8B8A
000000000458A00 [6A]

30 DATA 0000009ACFCFCFCF4700000000458A0000004565CFCFCFCF8B8A000000458A0000009ACF
CFCFCFCFCF47000000458A0000009ACFCFCFCFCFCF47000000458A0000001030306 59A30302065CF
CFCFCFCFCF8B65CFCFCFCFCFCF8B65CFCFCFCFCFCF8B01030303030303021020303131331122 0000
00000000000000 [EC]

40 DATA AF325E9C32729C32549C32589C1130752100C006787D127C131213CD26BC10F521A86106
C836002310FBCDEC272124E522409C3E2532429CCDD328CDD3280603C5CD5B28C13A589CFE00200D
10F2CD6E273A729CFE00C018DFCD282818DA3A5E9CFE00203AED5F0601FE40380104783261 9C3E01
325E9CED5FFE6c [AD]

50 DATA 30FA2130758716005F19EB1A6F131A673A619CFE0220041148001 9225F9C11204ECD2B29
3A5E9CFE49282E3C325E9C3A619CFE0228132A5F9CCD3E292A5F9C23225F9C11204EC32B292A5F9C
11070019CD3E292A5F9C2B18E732729CAF325E9CC9214A9C060736302310FB3E06CD90BB21160CCD
75BB214A9C0607 [C0]

60 DATA 7ECD5ABB2310F9C921509C06057E80FE3A28037718DA3E30772B7E3CFE3A28F618F1AF32
589C3E0A010000CD32BC3E07CD5ABB0E6406640010FD0D20F8CD0E283E0A010E0ECD32BCAF325E9C
2A5F9C11A861C32B293E4CCD1EBB200F3E2FCD1EBB20083A549CFE00201BC93A549CFE0020133C32
549CAF32579C2A [7F]

70 DATA 409C114D00ED5222559CCDB1282A559CCD29BCAFBE203523BE20312B22559C11804FCDB4
283A579CFE6E381BAF32549C11884F2A559C0604E51A7723131A7713E1CD26BC10F2C93C32579CC9
3C32589C18DA3E4ACD1EBB20323E17CD1EBB202B3E4BCD1EBB200C3E09CD1EBB2005CD252918312A
409C3A429C3CFe [48]

80 DATA 4A282632429C2322409C2BCD3E2918192A409C3A429C3DFE00280E32429C2B22409C1108
0019CD3E2911D04E2A409C0E16E506081A77231310FAE1CD26BC0D20F0C906163600CD26BC10F9C9
:SYMBOL AFTER 32:FOR t=40955 TO 42555:POKE t,PEEK(t) OR PEEK(t)/2:NEXT:PEN 2:INK
 0,0:BORDER 0 [C0]

90 l=20000:FOR m=1 TO 3:READ a$:FOR t=1 TO LEN(a$) STEP 2:POKE l,VAL("&"+MID$(a$
,t,2)):l=l+1:NEXT:NEXT:l=10000:FOR m=1 TO 5:READ a$:FOR t=1 TO LEN(a$) STEP 2:PO
KE l,VAL("&"+MID$(a$,t,2)):l=l+1:NEXT:NEXT:INK 5,15:INK 15,15,2:INK 14,15,26:SPE
ED INK 9,40 [DF]

100 MODE 0:PEN 5:LOCATE 1,20:PEN 8:PRINT STRING$(20,244):PEN 2:PRINT "  SCORE:-"
:INK 3,3,6:PEN 12:PRINT:PRINT "    KILL 'EM ALL":CALL 10000:WHILE INKEY$<>CHR$(1
3):LOCATE 6,10:PEN RND*15:SOUND 1,RND*20,2,15:PRINT "GAME  OVER":WEND:GOTO 100 [
FA]
```

ITALICS BY DAVID HALL

An italic character set for your CPC.

```
10 SYMBOL AFTER 33 [3E]

20 FOR t=40964 TO 42740 STEP 8 [28]

30 FOR k=t TO t+1:POKE k,PEEK(k)/2:NEXT [15]

40 FOR k=t+5 TO t+7 [65]

50 a=PEEK(k):IF a>127 THEN a=a-128 [9F]

60 POKE k,a*2:NEXT:NEXT [47]
```

UPSIDEDOWN CHARACTERS

BY DAVID HALL

Drive your friends crazy with this upside-down character set.

```
10 SYMBOL AFTER 33:CLS [86]

20 a$="I'll Turn you upside-down" [EE]

30 PRINT a$:FOR t=40964 TO 42740 STEP 8 [B8]

40 l=t+7:FOR k=t TO t+3 [B2]

50 a=PEEK(k):b=PEEK(l) [10]

60 POKE k,b:POKE l,a:l=l-1 [DA]

70 NEXT:NEXT:PRINT a$ [4A]
```

SNAKE

BY R. MURPHY

I remember buying this game many years ago and it still manages to get me back to the keyboard. The aim is simple - just guide your snake round the arena eating the pills as you go but beware because colliding with either the walls or your tail is fatal. There is, of course, a catch to this game and that is your tail. The offending appendage grows with each pill consumed, thus making it more difficult to avoid.

```
10 DI:MODE 1:BORDER 0:INK 0,1:INK 1,26:INK 2,24:INK 3,2:WINDOW#1,1,40,1,3:PAPER#
1,3:PEN#1,2:CLS#1:LOCATE 14,14:PRINT"Keys:Z,X,+,?":LOCATE 10,18:PRINT"SPACE or F
IRE to start":PEN#1,2:PRINT#1,TAB(17);"SNAKX":IF s%>hi% THEN hi%=s% [52]

20 LOCATE#1,1,2:PEN#1,1:PRINT#1,"Score:";s%;TAB(30);"Hi:";hi%:WINDOW#0,1,40,4,26
:x$="●●●● ":y$="→↓↑↓ ":dx%=0:dy%=-1:s%=0:fx%=0:fy%=0:ft%=0:k$="*":WHILE k$<>" "
AND k$<>"Z" AND k$<>" X":k$=INKEY$:WEND:CLS#0:PEN 1:FRAME:EVERY 50 GOSUB 90:DI[26]

30 a%=LEN(x$):x%=ASC(MID$(x$,1)):y%=ASC(MID$(y$,1)):ox%=ASC(MID$(x$,a%)):oy%=ASC
(MID$(y$,a%)):LOCATE ox%,oy%:PRINT" ";:x$=LEFT$(x$,a%-1):y$=LEFT$(y$,a%-1):x%=x%
+dx%:y%=y%+dy% [0E]

40 PEN 1:IF x%=0 OR x%=41 OR y%=0 OR y%=23 THEN SOUND 1,999,25,15,,,31:GOTO 10 E
LSE x$=CHR$(x%)+x$:y$=CHR$(y%)+y$:LOCATE x%,y%:IF COPYCHR$(#0)=CHR$(202) THEN SO
UND 1,999,25,15,,,31:GOTO 10 [A6]

50 PEN 1:PRINT CHR$(202);:IF x%=fx% AND y%=fy% THEN ENT 1,3,5,1,6,-5,1,30,1,1:SO
UND 2,100,39,12,,1:FOR f%=1 TO ROUND(ft%/2):x$=x$+RIGHT$(x$,1):y$=y$+RIGHT$(y$,1
):NEXT:fx%=0:LOCATE#1,15,3:PRINT#1,SPACE$(10);:s%=s%+10*ft% [6A]

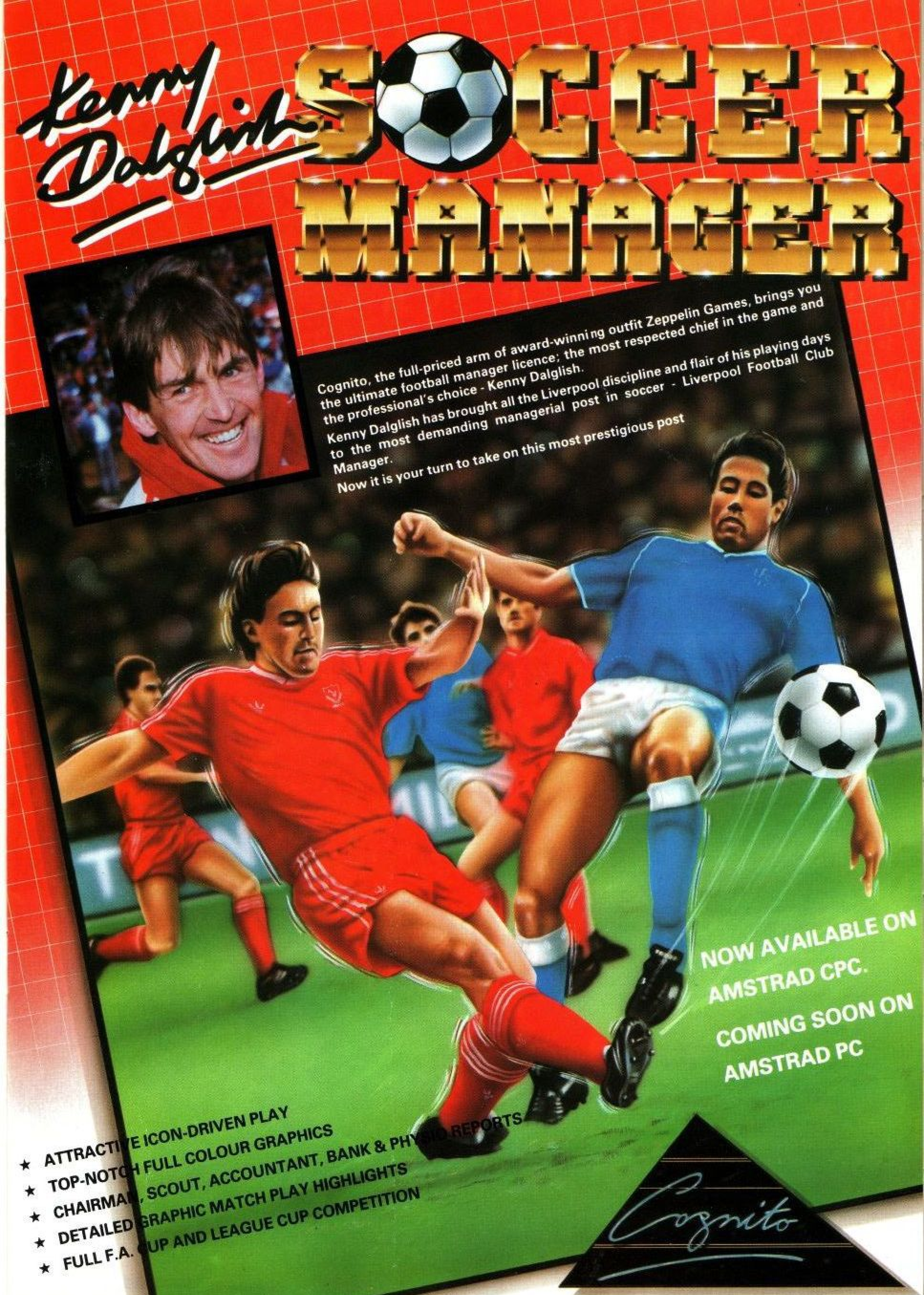
60 EI:IF JOY(0)=1 THEN dx%=0:dy%=-1 ELSE IF JOY(0)=2 THEN dx%=0:dy%=1 ELSE IF JO
Y(0)=4 THEN dx%=-1:dy%=0 ELSE IF JOY(0)=8 THEN dx%=1:dy%=0 [CF]

70 IF INKEY(28)=0 THEN dx%=0:dy%=-1 ELSE IF INKEY(30)=0 THEN dx%=0:dy%=1 ELSE IF
 INKEY(71)=0 THEN dx%=-1:dy%=0 ELSE IF INKEY (63)=0 THEN dx%=1:dy%=0 [58]

80 DI:ak%=0:LOCATE#1,7,2:PRINT#1,s%,SPACE$(10);:LOCATE#1,15+ft%,3:PRINT#1," ";:I
F s%<0 THEN PEN 1:SOUND 1,999,25,15,,,31:GOTO 10 ELSE GOTO 30 [3E]

90 DI:IF ak%=1 THEN RETURN ELSE h%=POS(#0):v%=VPOS(#0):SOUND 4,9,1,9,,,9:IF fx%<
1 THEN fx%=2+INT(RND*38):fy%=2+INT(RND*20) ELSE ft%=ft%-1:IF ft%=0 THEN s%=s%-10
0:LOCATE fx%,fy%:PRINT" ";:LOCATE h%,v%:fx%=0:GOTO 90 ELSE ak%=1:RETURN [F9]

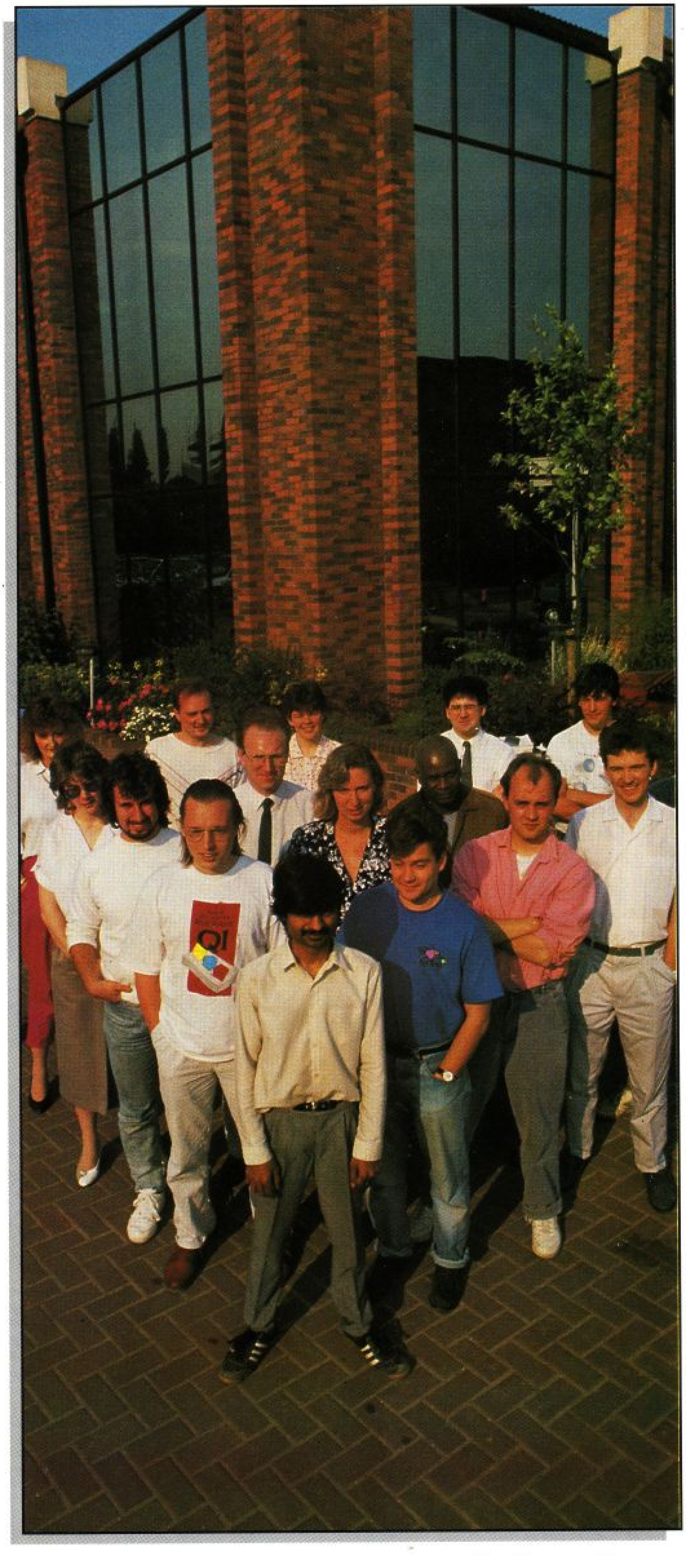
100 LOCATE fx%,fy%:IF COPYCHR$(#0)=CHR$(202) OR (fx%=ox% AND fy%=oy%) THEN fx%=0
:GOTO 90 ELSE ft%=10:LOCATE#1,15,3:PRINT#1,STRING$(10,CHR$(143)):PEN 2:PRINT CHR
$(231);:PEN 1:LOCATE h%,v%:ak%=1:RETURN [5B]
```



Kenny Dalglish
SOCCER MANAGER
Cognito, the full-priced arm of award-winning outfit Zeppelin Games, brings you the ultimate football manager licence; the most respected chief in the game and the professional's choice - Kenny Dalglish.
Kenny Dalglish has brought all the Liverpool discipline and flair of his playing days to the most demanding managerial post in soccer - Liverpool Football Club Manager.
Now it is your turn to take on this most prestigious post
NOW AVAILABLE ON AMSTRAD CPC.
COMING SOON ON AMSTRAD PC
★ ATTRACTIVE ICON-DRIVEN PLAY
★ TOP-NOTCH FULL COLOUR GRAPHICS
★ CHAIRMAN, SCOUT, ACCOUNTANT, BANK & PHYSIO REPORTS
★ DETAILED GRAPHIC MATCH PLAY HIGHLIGHTS
★ FULL F.A. CUP AND LEAGUE CUP COMPETITION
Cognito

Californian dreaming in Langley

Adrian Pumphrey talks to the guys and dolls at E.A. and writes nice things under threat of a drive in Lesley's car.



Many a strange concept has crossed the Atlantic from the sunny shores of California. As a result of the many hours spent under a cruel sun whilst consuming many a variety of drink, who would not be slightly crazy faced with hour upon hour of glorious sunshine.

Despite its outwardly normal appearance the Electronic Arts building holds a few unusual concepts and more than a few unusual people. It is most unsettling to walk into a bustling office to see endless rows of smiling faces, not a stress line between them. That is until they step into the car of public relations person Lesley Mansford. Everything you ever heard about women drivers seems quite probable when faced by the Bodacia style driving tactics of the ever helpful Lesley.

It all began way back in 1982 when William M. 'Trip' Hawkins convinced financier Don Valentine to part with his money. Hawkins left his job as director of marketing for Apple to set up E.A. because to quote a cliche, he believed in the industry. With a firm belief in the industry he set forth to produce his own brand of interactive fiction. Designed not only to entertain but suspend the belief of the user by transporting them to worlds of fantasy and impossible dreams. Co-founder Tim Mott brought his University management and research skills and was instrumental in developing the E.A. workstation. The third head honcho worked his way up through the ranks and now resides as head of



product development, Mark Lewis.

To aid in the creation of these flights of fantasy the humble programmer, the life blood of the industry, is known as a software artist. With this title comes the freedom an artist needs to create works of wonder. Each software artist uses a modified AT which is supplied by E.A. along with various programming and all important debugging tools. E.A. even has a Creativity division which produces software tools for the software artistes. One such inhouse development tools was Deluxe Paint which turned out to be the first best seller for the company.

In 1987 the company decided it was time to move abroad and it set up bases in Australia, Japan and England. Continuing with the expansion plans the company is investing in the technology of tomorrow. CD-I is of great interest to E.A. and the company is developing a working system which will give the user television quality pictures coupled with compact disk quality sound. Past technological breakthroughs include hardware which allowed video and computer graphics to be mixed.



Electronic Arts was created not only to make money and produce great interactive entertainment but to provide an environment the founders wished to work in. To help them create this rarefied atmosphere they have a rather elaborate interviewing system. Eight hours of interviews with not only the employer but the people the prospective worker will be working with. This ensures that everybody gets along with each other and accounts for all those smiling faces which populate the E.A. offices. Employees are actively encouraged to take part in the working of the company and each week they all get together over a few drinks and discuss where they are going and how to get there.

E.A. drew many of its early management ideas from the record industry. It drew comparisons between the varied tastes and fads of the record sales and applied them successfully to the world of computer games. Another idiosyncrasy of the industry the company had to face was the mercurial nature of the programmers – or as E.A. likes to say software artists. They surmounted many of the problems by creating teams comprised of artists, programmers and musicians that not only got on well with each other but complemented each others skills. At the moment most of the software being published by the company comes from America but with the formation of the English and other bases new sources are starting to emerge. Due to the development times involved the first English E.A. products are only now hitting the streets.

Initially the company found the emerging technology crude and incapable of fulfilling the dream of true interactive entertainment. With the advent of the 16-bit machine the dream took a bold step forward.

The month the company was formed a report was published which named one hundred and thirty five software publishing companies. E.A. thinks of itself as the hundred and thirty sixth company. From this relatively late start the company now see itself as the world leader as far as sales and profitability is concerned.

I think Lesley was not too happy about my comments about her driving and as I race for the train I can see her standing there with the car door open saying, "would you like a lift to the station," like a Siren inviting sailors to a watery grave.

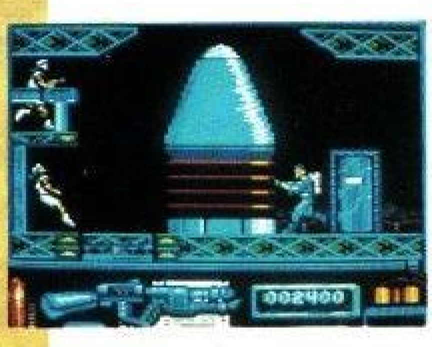
This month's selection of games covers everything from the born-again craze of skateboarding with *Skate or Die* to the dark side of the future with the *Paranoia Complex*. For the trigger-happy there is WWII action *1942* and for the more genteel readers the aptly-named bat-and-ball game *Batty*.

GAMEPLAN



TIME SCANNER

All the world is a pinball machine and you are the guy who will tilt those features.



NAVY MOVES

Battle your way through hostile seas to encounter the enemy bases where the bad guys are dying to meet you.



SKATE OR DIE

Challenge Lester to a duel of a lifetime; as the boards clash you know it is do-or-die time.

PLUS

Blade Warrior, Total Eclipse II, Tank Attack, Bomb Jack II.

TOP 20

1	(NE)	Fast Food	Code Masters
2	(1)	Robocop	Ocean
3	(13)	Twin Turbo V8	Code Masters
4	(2)	Treasure Island Dizzy	Code Masters
5	(RE)	Turbo Esprit	Encore
6	(NE)	Spy Hunter	Kixx
7	(7)	Dragon Ninja	Ocean
8	(NE)	Shanghai Warriors	Players
9	(5)	Fun School 2	Database/Mandarin
10	(3)	SAS Combat	Code Masters
11	(10)	Joe Blade 2	Players
12	(NE)	Run The Gauntlet	Ocean
13	(6)	After Burner	Activision
14	(NE)	Arcade Muscle	US Gold
15	(12)	Operation Wolf	Ocean
16	(NE)	720	Kixx
17	(NE)	BMX Simulator 2	Code Masters
18	(NE)	Crazy Cars 2	Code Masters
19	(8)	WEC Le Mans	Imagine
20	(4)	Big Foot	Code Masters

Last week's position in brackets
Top 20 compiled by Gallup



BLADE WARRIOR

Not so much cut and thrust, more leap and bound.

The history books state that in the year 1479 a squire by the name of Helfyre dominated the small village of Loxton. His domination was evil and through the years he had performed numerous dark deeds, disrupting the villagers and causing horrid deaths.

The people had had enough of Helfyre and in the dead of



night they invaded his castle. There was to be no nonsense. They dragged him out of bed, cut off his head swiftly and proceeded to burn the headless body.

The once-peaceful Loxton people had turned savage and overthrew their dictator. During their glee at being free they forgot one small thing, Helfyre's faithful man servant but, after all, what could he do?

Plenty. This loyal subject watched the crowd of jeering revolutionists. Finally they left the scene taking the head with them. He watched and waited until the charred remains of his master had cooled. He gathered them and stole back to a secret chamber where the body was laid to rest, still decapitated, but the servant was unable to find the head of his master. There was much left to do. The body was lifeless but the spirit and soul lived on to cause havoc among the unsuspecting villagers.

Loxton was still very much under the watchful eye of Helfyre who, in death, had become the Death Demon. Evil deeds were still being done 199 years later and the villagers were once more on the rampage, vowing to destroy the demon once and for all.

It is the eve of 200th anniversary of the death of Helfyre and the villagers know how to end the mindless havoc. You are the *Blade Warrior*, a ruthless fighter dedicated to freeing the people of Loxton.

It is predicted that at the stroke of 12 the demon will unleash a torrent of destruction on the land. The time is 23:50 and you have just 10 minutes to find the skull which has become lost and re-unite it with the skeleton of the evil squire.

Blade Warrior is a typical budget release. It incorporates fair graphics, boring animation sequences, rough sound effects and bugs. A bug would seem to be an undocumented game feature these days. What with certain arcade conversions not working properly, some games slip through the rigorous testing of the Darling clan.

The game is of the platform type and is particularly boring to play. A simple plot – find a skull and stick it on the body when you find it.

There is little more one can say about a game which is so much like any other. The graphics are reasonable, the sound is satisfactory. It plays like a budget game – badly – and, for the money it is not a worthwhile investment. It is best to save your coppers and buy a full-price game for fuller enjoyment.

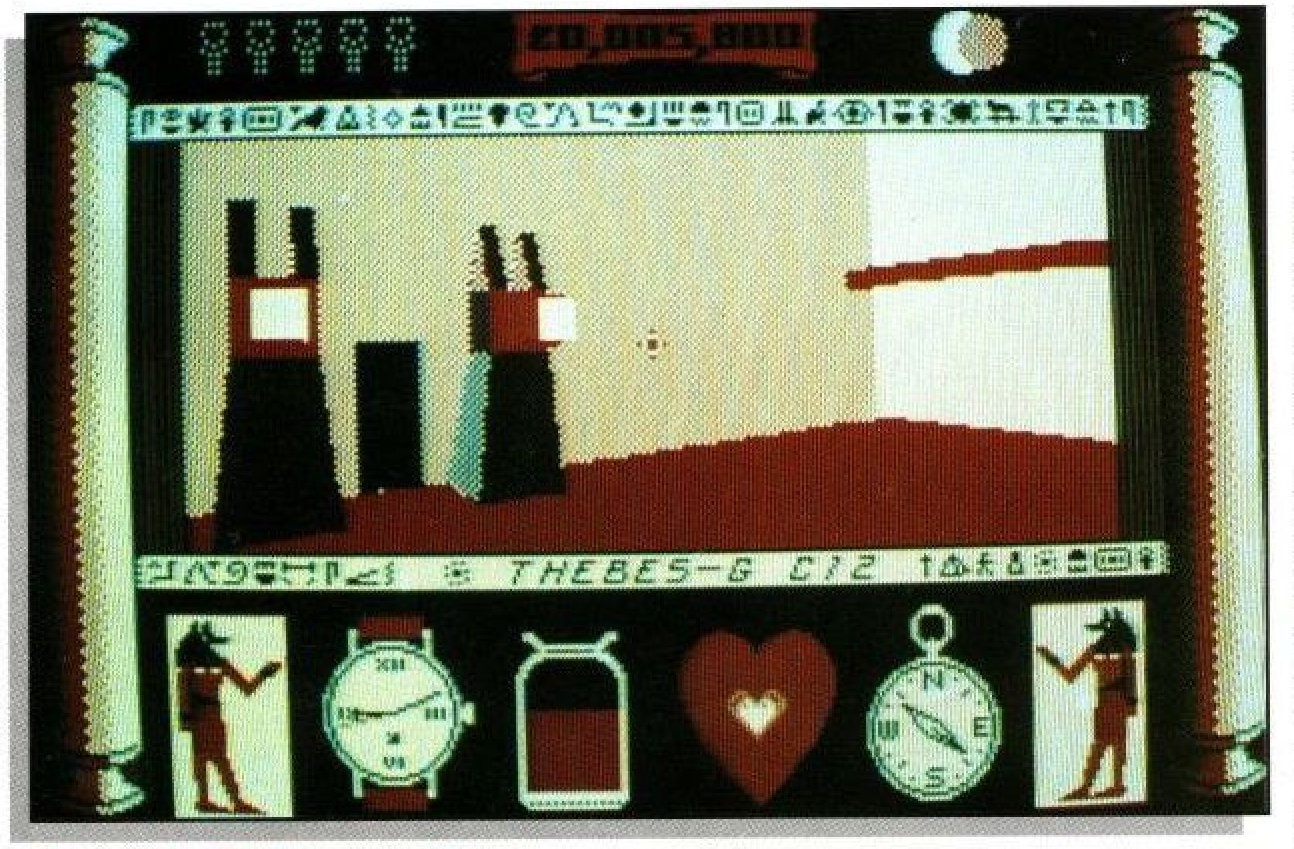
On a final note, Blade Warrior is so clever with a sword that he does not use it – he just avoids those dangerous objects.

Andrew Banner

ROUND-UP

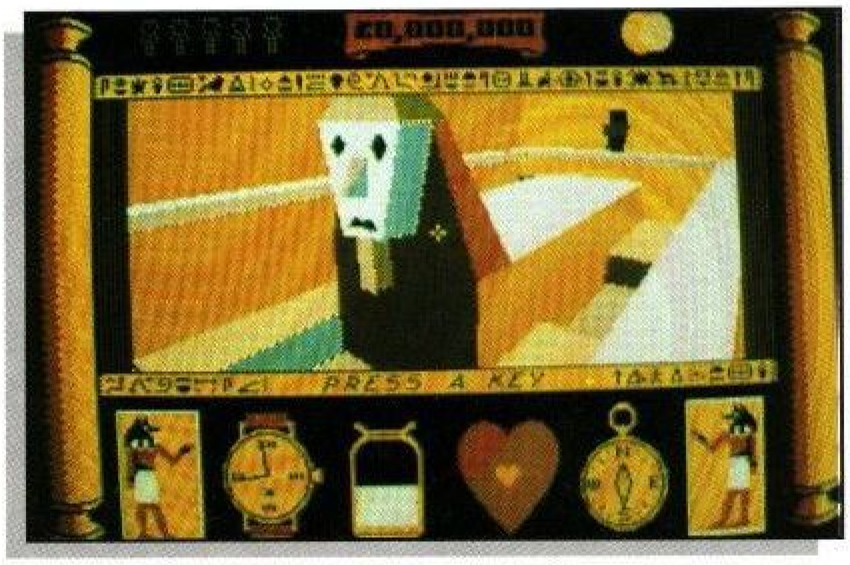
NAME	Blade Warrior		
SUPPLIER	Code Masters	PRICE	£2.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

A simple plot – find a skull and stick it on the body when you find it.



Total Eclipse II

Go head-to-head with the curse of the ancients.



Long ago in the mystical ages of ancient Egypt the people were revolting. The High Priest had become angry with his flock who were refusing to continue the sacrifices to the God of the Sun, Re. So great was his anger that he cracked and cast an evil spell over the people.

A shrine was erected in praise of the Sun God. The shrine was in the form of a huge pyramid, with a large chamber atop. The top chamber is cursed. If anything prevents the rays of the sun reaching the chamber during daylight hours the offending object will be turned to dust.

Today is October 26, 1930 and in just two hours there will be a total solar eclipse. The moon will cover the sun completely and blacken the earth. The moon will be but a memory, the explosion causing the destruction of not only the moon but the surrounding planets of which the earth is one.

You land your clapped-out Sopwith Camel biplane beside the huge structure. Your task is to infiltrate the pyramid and destroy the top chamber before the sun is blocked. Not an easy task but, nevertheless, one you may have done previously, *Total Eclipse II* asks you to return to Egypt and rebuild a mighty Sphinx which was destroyed in the revolution many hundreds of years ago.

Like its predecessor, Total Eclipse II used the award-winning Freescape 3D graphics technique and good it is, too.

The pieces of the Sphinx can be found littered in various subterranean caverns and rooms. You cannot just hang around as you must find and restore the sandstone statue to its former greatness before the next solar eclipse – in just one hour.

Playing Total Eclipse II is not exactly fun-packed. The graphics are jerky and somewhat slow but do not be deterred. The game may not be the fastest thing since Ben Johnson but it provides the adventurer with a hell of a challenge.

Once inside the maze of tunnels you will find yourself lost and in need of liquid refreshment. Water troughs can be found attached to some of the walls but they are few and far between. It is advisable to make a map of your route so far and to note where water can be found.

Inside there are many raised catwalks. Some are barriered but most are open and falling off is simple. If you fall off you will black out for a short time. Some falls are fatal, so keep them to a minimum. As you wander through the complex you will be informed if there is a piece of Sphinx in the room. Walk over to it and you will pick it up.

Many of the doors in the complex are blocked, some by bars, others by debris situated in front. Debris is removed easily – just blast it. Bared doors are not so easy to open and you will need to think about them.

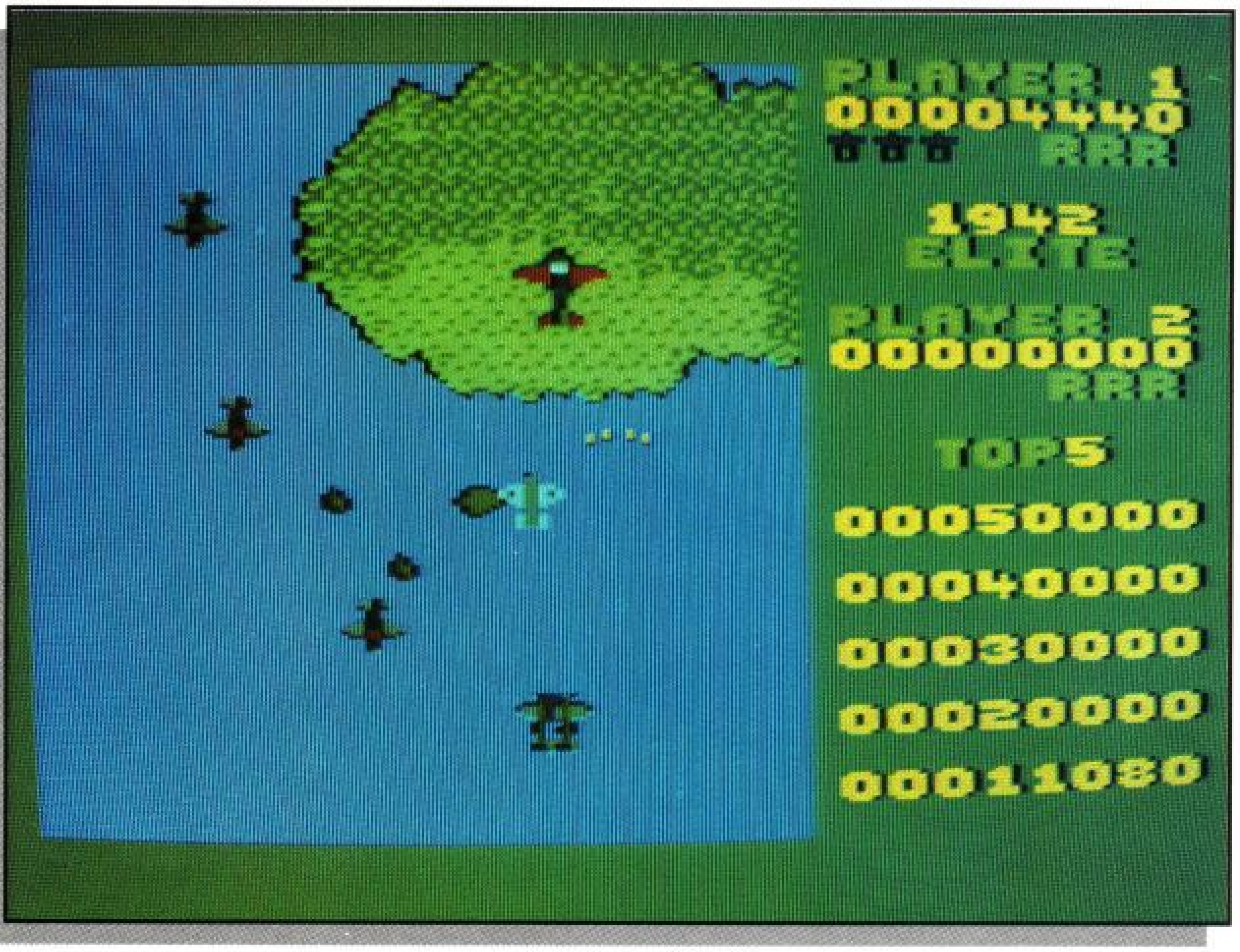
Total Eclipse II is a great game for those with plenty of time on their hands. It is certainly one for adventure fanatics but if you like a mental challenge you should look seriously at this game.

Andrew Banner

ROUND-UP

NAME	Total Eclipse II		
SUPPLIER	Incentive	PRICE	£11.20
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

"Total Eclipse II uses the award winning Freescape 3D graphics technique and good it is too."



1942

A flight of fantasy as you soar through the skies twin cannons blazing.



The war is drawing to a close and you are on the losing side. It looks as if it is suicide mission time again; as a one-man fighter just might be able to penetrate the enemy defences and strike a telling blow for freedom and righteousness.

This is not *Star Wars*, although with a plot like that it could be. This is World War II, and based roughly on the Battle of Midway. Very roughly, I would say.

The objective is simple, which is why the Spectrum version sold well. It consists of flying your fighter aircraft over land, sea and islands, in 32 stages of frantic action against enemy fighters, bombers and superbombers. Obviously I am mistaken because I did not know there was a Japanese equivalent of the Flying Fortress.

What all this has to do with Midway is a matter of conjecture and inlay writers' hyperbole. What game is based on is the arcade game called *1942* from a few years ago.

The first point to note is that the screen scrolls vertically but that it has been reduced in size and still is not particularly smooth. It is not so lumpy as you might get on a Spectrum, so there is at least that consolation and you have multi-colour graphics for a change.

That is the good side; now for the bad news. The music on the title page is atrocious. It is supposed to be 767 Squadron but has been mangled virtually out of all recognition. The sound effects in the game are not much better either. Plinks and pings are the best description, though a needle falling on to a baking tray produces a similar result. I wonder if it was sampled?

Your fairly small fighter moves fairly sluggishly about the screen as the enemy fighters crawl towards you. I pity them because someone obviously forgot to put some ammunition in their guns. You are not fired on until the big boys arrive. The sprite detection here is no great shakes, either.

If you shoot a particular enemy or collection of them a mysterious POW symbol appears. When you run into one of them an equally mysterious tranformation occurs to your aircraft. Sometimes you can just fire faster; at other times you find extra aircraft stuck on to your wingtips, providing extra firepower that way. It makes you a good target, though, and when the Flying Fortresses arrive they can scarcely miss you.

What is wrong with 1942 is that the sprites are too small, the playing area is too small, the colours are poorly thought-out, the sound effects are probably the worst I have heard in any CPC game and, worst of all, it is boring to play.

Mark Ulyatt

ROUND-UP

NAME	1942		
SUPPLIER	Elite Systems	PRICE	£2.95
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

"This is not Star Wars, although with a plot like that it could be."

TANK ATTACK

A computerised umpire who deals the deathly blows with sound and graphics.



The heavy trundle of big league armour shook me to my boots; fear gnawed ceaselessly at my soul as the division drew closer still. I could see the eyes of the leading driver, see the smug look of satisfaction on the commander's face as he raised his arm and the force spread out. Where were our tanks? They had left the depot completely unguarded. I shouted to the radio operator to try them again – one last, desperate try.

Behind a hill 500 yards away the Armanian tank commander watched the Sarapan tanks spread out in front of the depot. Regret was plainly visible on his face as he watched the enemy open fire and the depot HQ disappeared in a shattering series of explosions. Fire, debris and smoke mingled as the tanks rolled forward and the people in the depot started to die.

He ran back to his own force – a smaller force – vaulted up to the scarred turret and signalled for the last desperate act of the war to begin. With the Sarapan forces enjoying the destruction of the helpless depot, he hoped to catch them unaware and make them pay for the lives they were taking so casually.

Anyone who has an appreciation of board games, wargaming, computer strategy games or great warfare films like the *Battle of the Bulge* should enjoy this lightweight combined computer/board wargame from CDS.

CDS also produced a previous uneasy marriage of formats in *Brian Clough's Football Fortunes.*. Having seen the cheap production standards in that package I was pleasantly surprised to see that this time you get a heavy laminated folding card board, 48 plastic playing pieces and a comprehensive rule book.

Tank Attack is a board game with computer moderation of conflict situations, for two to four players. It is a pity there is not a one-player version.

Taking the role of General of a tank corps, consisting of eight tanks and four armoured cars, the objective is to capture the enemy headquarters or destroy all their forces. Everyone in the game need not be your enemy; alliances are possible and with the sharing of rebuilding and repair depots is possible.

Initially all pieces need to be deployed on the board in such a position that the other commanders cannot see the markings on their backs, as that is where their firepower strength is indicated.

Then it is movement time, with the computer issuing the number of movement points which depend on weather, morale and a random factor for laughs.

Spotted an enemy unit? Good, then blast away. Each unit may fire only once and an enemy unit may not be subjected to fire from more than one unit. This seemed a little artificial and it is. Check the advanced rules section for elaboration on the basics and multiple firing.

There is some measure of data entry into the computer at that point but it does not take very long once you are familiar with the process and then you can watch the animated computer display of the conflict.

At the start of each day the newspaper, War News, is distributed free to all generals. It gives battle activities, strengths of the combatants, political news which affects morale and the weather forecast. Pay close attentional to all this as it gives some clue to the day's movement point allowance and other battlefield information. As with all newspapers, though, there can be propaganda and bias, so take some things with a pinch of salt.



Tank Attack certainly works much better than the previous CDS offering and is an interesting marriage of two dissimilar formats. The computer presentation is first-class, with colourful graphics and animated sequences and combines well with the generally high-quality board game elements.

The game is not particularly difficult to play, yet offers all afficianados of the Battle of the Bulge a chance to take control of a tank corps, without all that noise.

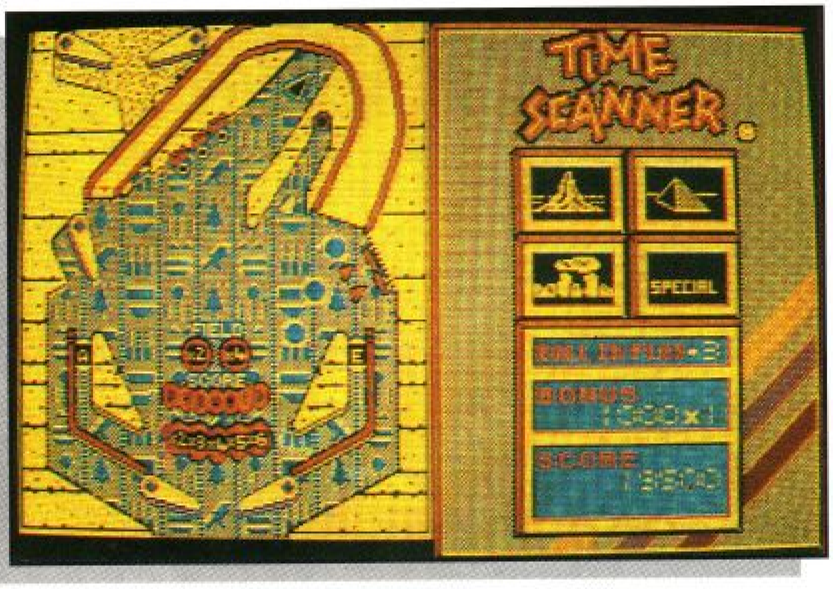
Mark Ulyatt

ROUND-UP

NAME	Tank Attack		
SUPPLIER	CDS	PRICE	£12.99/£14.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

"Regret was plainly visible on his face as he watched the enemy open fire and the depot HQ disappear."





Time Scanner

The greatest challenge in the galaxy, an Earth size pinball machine.

From across the universe they came. Ancient Earth melodies shattered the calm as the fleet came even closer. The leader reached for the intergalactic communication device and screamed at the top of his lungs, "I'm a Pinball Wizard and I've come to play *Time Scanner.*"

"The Who have a lot to answer for" mumbled a man on the street corner as the time zones went crazy and the big silver ball started its epic journey across the biggest pinball table in the universe, the Earth. The journey begins near the site of an extinct volcano. This Hawaiian nightmare must be brought to life by lighting the letters which spell the word before you can move to the second of the four levels.

Like the other levels, the playing area is split into two halves. You start on the top half, which is a table in its own right. Depending on the level, the top or bottom half of the table is used for collecting a few bonus points and the other for completing the task which will take you to the next level.

On level one the top half is used for bonus points. There are two ways for the ball to work its way to the lower level. One is through the ever-present gap between the centre flippers and the other down one of the two side shoots which are initially protected by knock-down shields.

When the ball passes from the domain of the top section to that of the lower there is a slight pause as the program page flips between the two halves and the ball which was at the bottom of the top screen now appears at the top of the bottom screen. It is possible, by accurate shooting, to get the ball back on to the top level but when playing the volcano scene this is not necessary, as your task is in the lower section. To light the letters of the word "volcano" you must fire your ball up a central tube whose entrance is protected by knock-down tabs. Your five balls with which to complete this task can be lost, either through the flippers or down the two narrow tracks at the side of the screen. If you are fast enough you can use the three tilt directions – left, right and up – to deflect the ball from those hazardous areas.

Lighting the word results in a volcanic eruption, a dramatic darkening of the screen and the multi-ball option coming into play. Three balls blast round the screen for as long as you can keep them there, collecting those precious points. Three balls are slower than one but not so slow that you can relax your guard.

The time waves ripple and you find yourself in the ruins of a once great city. On this level the task is simple; all you have to do is drop three balls into a hole at the top of the upper screen. If it is as simple as it sounds, why did it take me so long to complete the level? It certainly was not my total lack of aim with the flippers or the fact that the ball insisted on falling through to the lower screen. On the lower screen there is a circular ramp which can be traversed by the ball for





mega bonus points. Each ball deposited into the hole re-appears in a box on the lower level. Once again, completing the level results in the manic three-ball session.

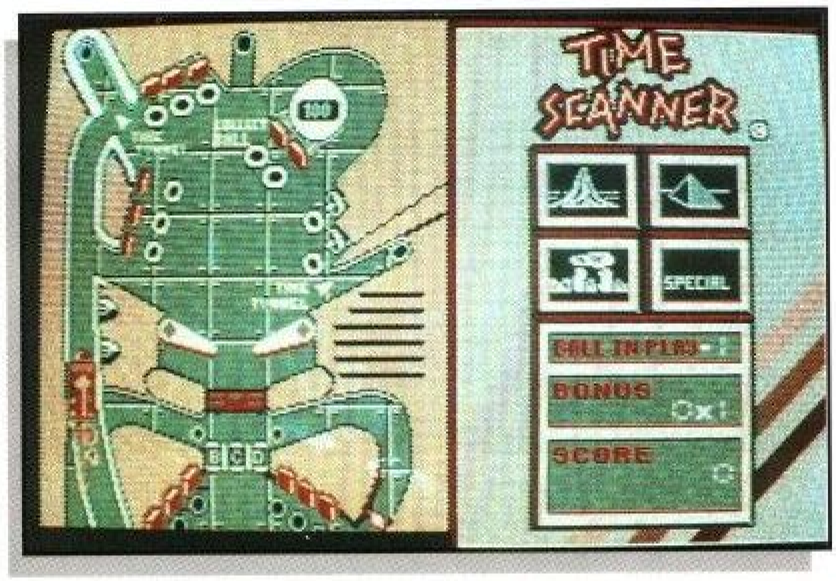
Ancient Egypt is the next port of call as you pay a visit to the pyramids. This level is a little trickier than the last as you have to light the letter spelling the word 'pyramid' and deposit three balls in the side pocket. As the balls are deposited a pyramid builds and at the final part of this level a mummified face breaks out from behind the wall.

The last level is called Final. To complete it and win the game you must indulge in a little brick blasting. At the top of the screen the letters spelling the word 'final' appear one at a time at the top of the screen. Using your trusty silver ball you must blast away at the blocks which make up the letters. Be warned – this is no easy task and may well bring you back down to Earth with a bump.

It is surprising that the Amstrad plays better than the Amiga version. The feel of the table is there and as the sonics assault your ears and your eyeballs rattle in your head, remember that deaf, dumb and blind kid plays a mean pinball.

Adrian Pumphrey





ROUND-UP

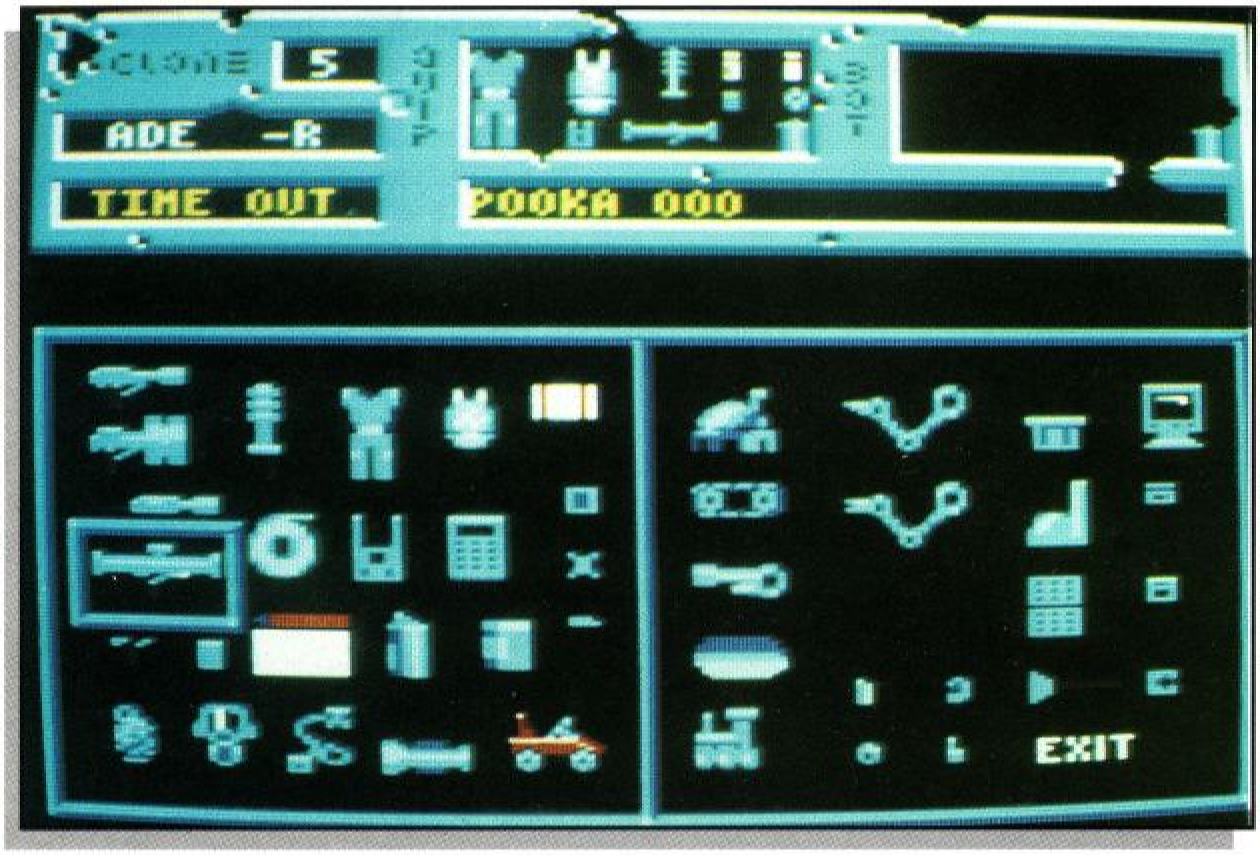
NAME	Time Scanner		
SUPPLIER	Activision	PRICE	£9.99/14.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

It is surprising that the Amstrad version plays better than the Amiga version.

Paranoia Complex

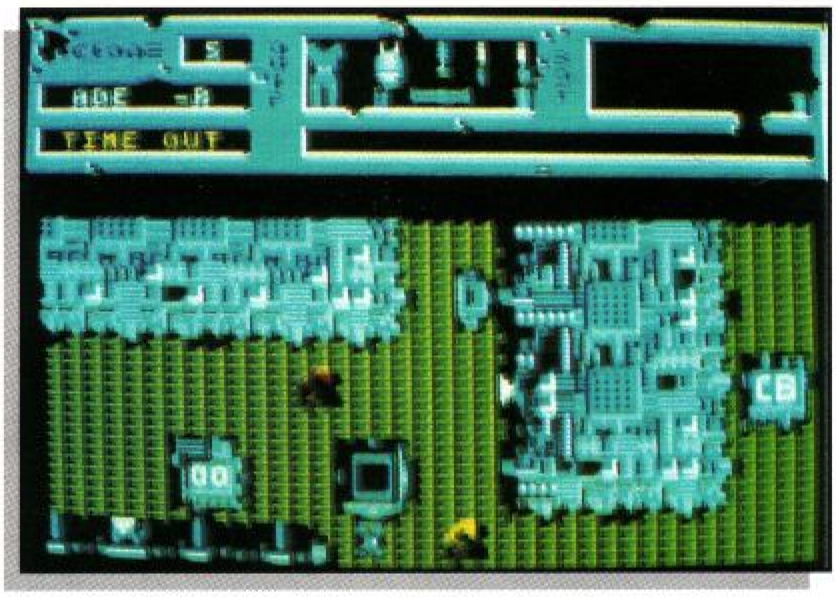
Happy? Content? No grey clouds looming over the horizon? If so, this game is not for you. Or is it?

Most days I feel content. I work in the food vat department, you see. It is not that great; I get by but recently I have had the feeling that someone or something was out to get me. Friends are whispering behind my back, my work hours are changed all the time, my lunch time was reduced from eight minutes to five and the security guards all eye me suspiciously. I do not know why – I have done nothing wrong, I just like to look at trees. What is wrong with that? All this suspicion is getting to me; you could say I am becoming paranoid.



The *Paranoia Complex* seems like a computerised and poorer version of the role-playing game *Paranoia*, produced by West End Games. The game takes place in a sealed city underground, in the alpha sector – Paranoia called the city the Alpha Complex – in the not-too-distant future. Society is run by an all-powerful computer and social success is measured by security clearance, ranging from red to blue.

Your aim is to serve the computer which, of course, is deranged by eliminating traitors – real, suspected or just the gullible who you can frame. As you eliminate the traitorous scum you can rise in security level and ultimately be big enough to determine how to escape from the complex completely.



The display is *Gauntlet*-esque, top-down, reduced screen, lumpy scrolling. On entering individual buildings the top is removed so that you can see in.

Equipment and food are two essentials in the game, so you will need to hunt traitors, serve the computer and earn plenty of credits. Scattered round the complex are computer terminals where you can buy foodcards and extra goodies like bots. Having a bot trog round after you with all your heavy kit is recommended.

Programming the foodcards is fun because you have to hold down 10 keys simultaneously, otherwise the programming goes wrong and you eat the equivalent of a very hot curry. Working out what to do to who, how to do it and with what to do it is where the enjoyment comes from this game, so do not play it as a maze game with shooting, or you will be disappointed.

The graphics are nothing special, neither are the sonics, but the gameplay is well-balanced and when you get into it Paranoia Complex has much more depth the most action-orientated games.

Mark Ulyatt

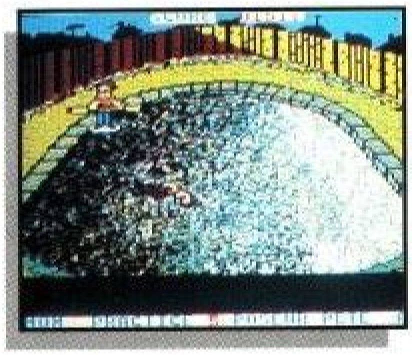
ROUND-UP

NAME	Paranoia Complex		
SUPPLIER	Gremlin	PRICE	£9.99/£14.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

Otherwise the programming goes wrong and you eat the equivalent of a very hot curry.

Skate or Die

Pit your skills against spoilt brat Lester, the boy begging for a good thrashing. But beware. Do not let your anger get the better of you on these testing tracks. Otherwise Lester will have the last laugh.



The guy who owns the skate shop is a bit of a grouch but that is no difficulty. The real problem is his son Lester. The obnoxious little brat is begging for a good thrashing, so you decide to play him at his own game – the skateboard. It is a pity Lester is so much better than you.

In the skate shop you can log in for the competition or view the current high scores. You can leave the shop either to practise the events individually or go for broke and challenge Lester to



an all-out, four-wheeled war. Once outside the shop in practice mode you see a small street plan, each street branching to a different event.

The events range from the self expression of the freestyle ramp to the humbling experience of the pool joust. Most of the events take place on a static background and are very well-drawn but two of the events scroll and, to speed things a little, the colour has been kept to a minimum – black and white. The most unusual feature of the game is its complete lack of sound – an unusual move but it gives the program that extra touch of speed and playability.

There are two ramp events which take place in an elongated half-pipe. One requires brute force as you waggle your joystick to gain a few feet in the high jump event. On the freestyle ramp you have 10 passes to perform the most outlandish tricks before the unbelieving eyes of the judges. The tricks you perform depend on the angle of the joystick on take-off and the number of times you pumped the board while travelling the ramp.

You can start with the simple tricks, staying on your board and travelling a few feet into the air and, when you gain a little confidence, you can go for the rotates and handstands. Although you gain more points for the trickier manoeuvres you have a greater chance of bouncing your skater on his head a few times as he travels back down the ramp the difficult way.

The joust is an event in a class of its own and brings to mind the legendary times when knights fought on the fields of honour. Taking your boffing stick you attempt to unboard your rival as you pass each other in the pool. It is possible to delay for a short time at the rim of the pool or even slide your board along the top of the pool either to align yourself for the attack or avoid the oncoming attack. After five passes the boffing stick is passed to the other player and the first person with three knockdowns wins the joust.

The final two events, downhill jam and race, both feature scrolling action. In the race you must traverse the building site, leaping over the barricades and hurtling down the pipe; avoid the obstacles at all costs as you cannot afford the time to pick yourself from the floor. In the jam you race against Lester through the back streets, creating a little mayhem as you go. Kicking over the trash cans can be fun but kicking Lester is even better. Skating into walls is not such a good idea but if you do nothing else, avoid the wire fence. Passing through this obstacle has a similar effect to an egg slicer. Each event is well put together and the desire to thrash Lester will have you returning for more, time and time again.

Adrian Pumphrey

ROUND-UP

NAME	Skate or Die		
SUPPLIER	Electronic Arts	PRICE	£8.99/£14.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

The obnoxious little brat is begging for a good thrashing, so you decide to play him at his own game, the skateboard.



NAVY MOVES

It is a man's world in today's Navy. So you can imagine my reaction when I saw the cover to *Navy Moves*. It portrays a macho nautical type in rubber clutching a weapon in both hands. The scenario is straightforward. You play a muscular Navy commando whose mission is to locate and destroy a nuclear submarine which is harboured in an enemy base.

The first part of the game consists of three zones which have to be negotiated successfully before moving to part two. Zone one has your commando driving a motorboat through mine-infested waters. Timing is crucial as you jump over mines and shoot kamikaze commandos bearing down on you with their aqua-bikes – a very frustrating stage.

Progressing to zone two and your commando has slipped into wetwear to find the undersea entrance to the enemy base. Watch for the sharks – I found a sharp blow with a handbag to the snout deterred them – and enemy scuba divers which guard the entrance. Once past them you have to capture a bathyscaphe, a miniature submarine with which you move into zone three. Things start to get very exciting now. Cruising in your bathyscaphe you are inspected closely by giant octopi and eventually come face to face with a giant, long thick sea monster, which can be killed by shooting it repeatedly in the mouth.

Part two of Navy Moves has your man emerging from the bathyscaphe inside your nuclear submarine. The objective is to make a deep penetration of the submarine and place a bomb at the base of its nuclear reactor, stop the submarine, make it emerge from the sea and then transmit a message from your base. Unfortunately, access to the main computer is needed for all the actions, plus the correct code words to activate each action in turn.

Codes can be gathered by killing and searching; the First Official will give you the code needed to stop the submarine and make it emerge. The First and Second Machine Officials hold the codes to open the base of the reactor door and the First and Second Transmission Officials hold the code to allow you to transmit a message to your base.

Kill the Captain and you can have access to all the codes. The submarine is swarming with enemy marines armed with guns and flamethrowers, while you have only limited ammunition – although more can be gained by searching marines you have killed – so do not shoot too soon; rather avoid the enemy by lying prone on the deck, when they will ignore you.

Navigating the submarine is tricky and the cutaway map provided will help enormously, as will the pause button. The game ends when your commando has completed all the tasks successfully and transmitted a message to his base; then you make your way to the top of the control tower to be rescued by your chums.

Navy Moves is a good follow-up to *Army Moves*. The graphics are of a very high quality, especially during the submarine sequences – much better than I would have expected from an Amstrad machine – and there were enough levels to satisfy even me. An added bonus was the inclusion of numerous illustrations and annotated diagrams of the equipment and the submarine.

Adrian Wall-Hayes



ROUND-UP

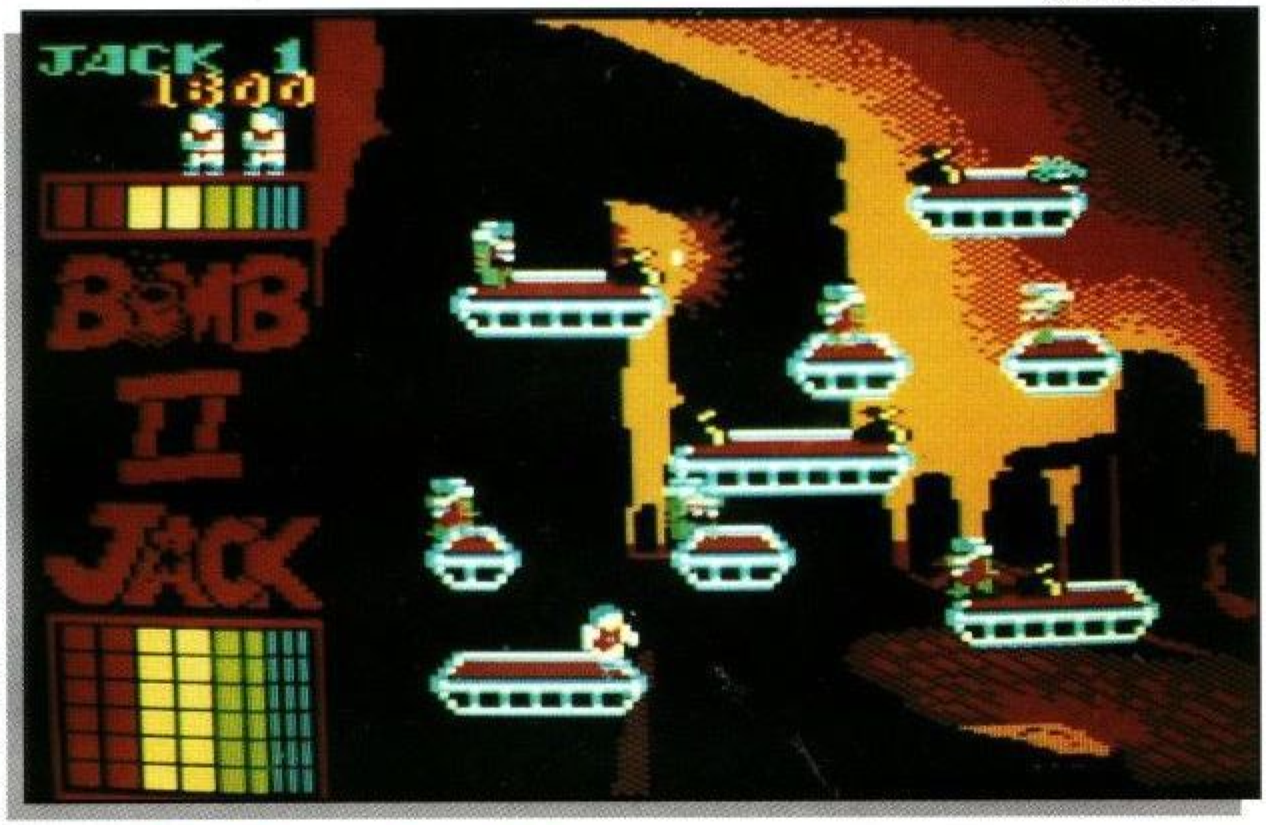
NAME	Navy Moves		
SUPPLIER	Electronic Arts	PRICE	£9.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

Kill the Captain and you can have access to all the codes.

Contrary to what you might think, *Bomb Jack II* is not a rare groove house mix but rather the sequel to one of the more memorable platform games of the early 1980s.

Elite Systems has decided to unleash the sequel on the unsuspecting public once more, thanks to its budget label, Encore, so you may even have this game in your collection already. If you cannot remember I would advise you not to buy it again just because it is cheaper – it has not improved.

The premise of Bomb Jack II is simple. Leap from platform to platform, stabbing enemies, collecting all the treasures. Still, if BJ2 was a good action game,



Bomb Jack II

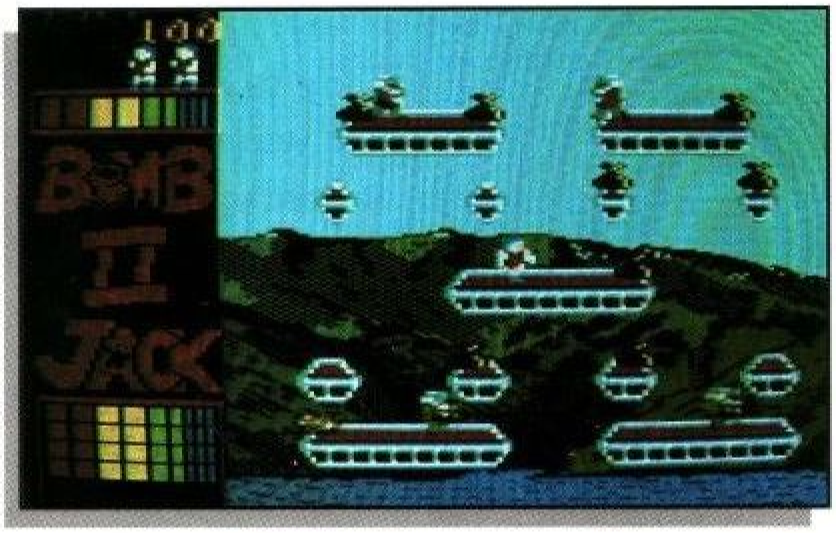
Explosive action as small man is eaten alive by Lizard.

with plenty of excitement, snappy sonics and gripping graphics that would not matter; you could justifiably say that it was satisfactory.

Alas, is it not a good action game; the sonics are squeaks, the graphics just coloured blobs and you could justifiably say only that it was as interesting as a puddle.

The puddle simulator starts in the great outdoors; note that the backdrops are completely irrelevant and serve only to distract the eye from following what passes for action. You can leap sideways to a platform on your level, straight up to a platform directly above, or you can run round on the platform you are on. The tricky part is when you have to leap up to a platform occupied by a monster before you can reach the platform where the last treasure awaits.

It is tricky because the monsters are dificult to deal with in a random kind of way. Catch one from behind, stab, stab, and it is history. Alternatively, end up in front and you are pushed along, your energy level declining faster than the NHS. Once depleted, there is no hospital bed – just a life lost and wasted. What is really tricky is that some of the platforms which contain a monster and have to be traversed are very small, making it very dificult to get in a clean stab and finish the job early.



If you dilly-dally the monsters will mutate to a new form, sometimes a form more amenable to stabbing as well, so do not be afraid to wait if you cannot see a way out. One generation of uglies even leaps round the screen, which makes life more perilous in the short term, but easier in that all of them can be avoided.

There are bonus points for getting the treasures in the correct order but I did not really care. The graphics might be multi-coloured but they are multi-coloured blobs. There is little definition and they occasionally clash with the background, becoming difficult to see.

Bomb Jack II may have been a good idea in its day but that day has long since gone and this is one history lesson not worth paying to sit through.

Mark Ulyatt

ROUND-UP

NAME	Bomb Jack II		
SUPPLIER	Encore	PRICE	£2.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

"Your energy level declining faster than the NHS."

How many times have you picked up a new game, only to find that it is not new but incredibly old and a clone at that? My guess is that is has happened to you often, as many games released today, especially budget games, are either clones or re-released games of yesteryear.

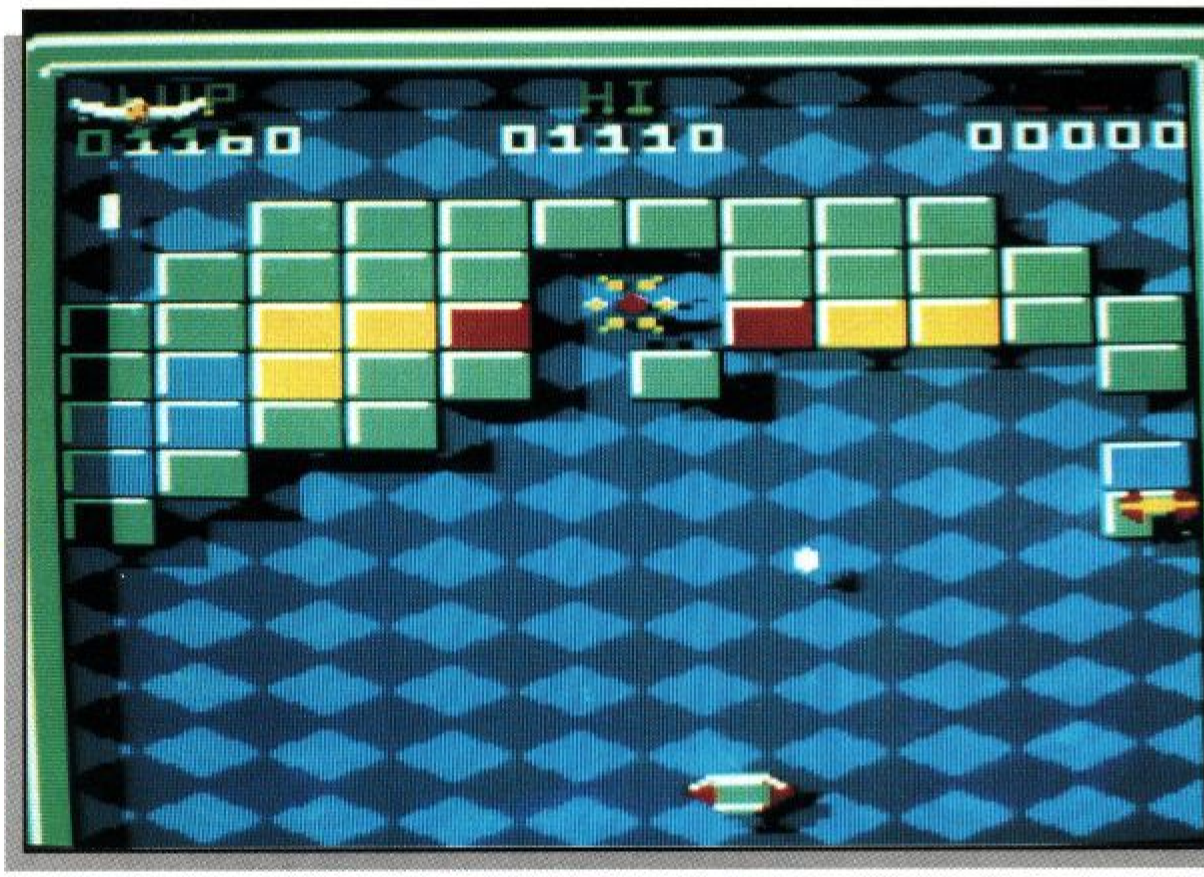
Breakout began in the mists of time – the late 1970s anyway. After some time the arcade operators noticed that there was less and less interest being shown in the machines and they were taken out of service.

Breakout was forgotten about for many moons and then Taito resurrected it and re-launched it as *Arkanoid*. Since Arkanoid first appeared on a home computer we have been bombarded with similar clones of this ancient concept – bounce a ball round a court while knocking out coloured bricks.

The concept is simple and the game challenging and enjoyable, yet one can have just so much of a good thing. There must be 50 Breakout-type games available across the broad range of home computers, so will another one tip the balance?

I doubt it but it is worth thinking about. I have had enough of Breakout and Arkanoid and any other relatives to last me a lifetime.

It should be noted that any Breakout game should be played using either a paddle, mouse or any controller which is speed-sensitive. A joystick or keyboard will always give the same speed to the bat and so makes the game incredibly difficult.



BATTY

They say the old games are the best, but what of a new game that plays like an old game?

Batty is the latest budget release from Encore. It is basically an Arkanoid clone with very few subtle differences. The main and most noticeable difference is a small space invader at the top of the screen firing lasers at you. They must be avoided. Other than that, the game is virtually identical. The only differences are subtle to avoid infringement of copyright.

As usual, many blocks are tougher than others and require to be hit a number of times before they disintegrate. Some blocks release special pods which drop towards the bottom of the screen. If caught they will change your bat into something special.

As you might expect, I am not exactly raving about this game. It is a copy of a copy of a copy. There is little which is new and it includes all the features from previous games.

I am not saying that the game is bad. In fact, it is reasonably good but it is becoming incredibly boring to keep seeing these kind of games. Does nobody have any new and original ideas?

Graphically, Batty is very colourful. The sound effects are reasonable but the gameplay is somewhat lacking because of the uncontrolability of the bat speed. If it were possible to play it with a mouse or paddle it would enter a whole new area of youngster fun.

Andrew Banner



ROUND-UP

NAME	Batty		
SUPPLIER	Encore	PRICE	£2.99
GRAFFIX			
SONIX			
PLAYABILITY			
OVERALL			

The main and most noticeable difference is a small space invader at the top of the screen firing lasers at you.

BrunWord & Printer

Pedals, mountains & sunshine but no CPC!

Peter Brunning's idea of a Holiday can be too much like hard work.

I laid in the shade just inside the Austrian border, map spread out, trying to decide if I was fit enough to cycle across the Alps by the highest pass which rises up to over 8000 feet. I was carrying a small tent which did allow me to stop anywhere if I ran out of energy. As it turned out I was right to wonder as it was really just beyond my capabilities. I have never worked so hard as the day I went over the Timmeljock pass and never felt so exhilarated as the experience of coming down the other side. It rained on the way up but I came over the top into brilliant sun shine, looking across the tops of many fantastic snow covered mountains. I stayed one night in Italy in a German speaking Gasthoff and then over an insignificant pass (in comparison) back into Austria. I came home by train, from just inside Germany, feeling the world was at my feet and with a promise that this was the start of many new travelling adventures.

It had been my ambition for countless years to cycle the Romantic Route which goes from Wurzburg in Germany to Austria, and then to continue over the Alps into Italy. Last year, for the first time, I felt fit enough and had the right gears on my cycle.

The Romantic Route certainly lived up to its name. The top section undulates gently and provides stimulation periodically with a series of fascinating ancient walled towns. The middle is best forgotten except for the campsite at Lech, where the owner insisted that I used a caravan as it was about to rain. Fifty miles on, the Alps were just discernable as a misty outline and gradually unfolded over a period of two days, into the majestic, snow covered scenery that dominates Austria.

That memory of only a year ago seems so distant now. I look into the office after a weekend off and wonder if I really want to wind up to that acute mental state needed to solve the next software problem. Then the phone rings or the post arrives and an excited letter or a praising telephone call provide the boost to mach 3 and the week takes off. Writing software can be hard but there is no doubt that CPC users are very responsive to just a little above the ordinary.

The astute reader may have noticed a holiday spirit and an unusual light hearted patter to this advertisement. What is this all about? Quite simple, it's holiday time!

I was in the bath, taking a relaxed view of the heavy burden that programmers carry and reflecting on the problems of the world. Honesty is important to me, possibly almost to excess and yet it is so difficult to be completely honest. But imagine a world where everyone was totally dishonest. Where no one could be trusted. The world as we know it could not exist. This is light hearted so I won't labour where it relates.

It struck me as I lay in the closeted warmth of the bath, that there is a light hearted angle, which would suit the 'holiday period'. Ahha! I hear from the pages, as it dawns on the reader that this is a little more serious than the writer is letting on.

I cannot hold back any longer, so here it is. July is to be the 'holiday period', where a response from Brunning Software may be slow. But hunger can still strike as it does not recognise such a distinction and you must still send in your orders! So here's a little carrot just for the month of July.

Send your order by post with a cheque or postal order and deduct £4.00 from our usual price, as listed below. You MUST also include a short letter which explains a reason why you deserve this discount and this MUST be an honest reason. Be kind and try not to be too serious. We will chose one letter that may be the most original or the funniest and include an extract in our advertisement. The writer of that letter will receive a full refund and a complimentary copy of BrunWord Elite.

The response to our Tasword upgrade, introduced last month, has been good. For the month of July we will extend this to include Protext and Mini Office II, as part of the honesty theme. For the month of July if you already own Tasword (disc), Protext (disc or ROM) or Mini Office II (disc), you can deduct £7.00 from any price listed below. Don't send the programme, just look into your conscience and remember that you rely on honesty just as we do. If you are a legitimate owner tell us and deduct your discount. You MUST also tell us why you deserve this discount, as explained above.

That's enough soft talk, it's time for a few serious comments. Our new booklet should be ready when this advertisement appears but won't be posted out until early August. Everyone on our list will eventually receive a copy and an attractive update offer. BrunWord Elite is also behind schedule and will not now be released until late summer. Let me leave you with a final thought. BrunWord Elite printed this entire page, heading, text, large box round the edge, all the lines and the invisible teddy. This was one printing operation, at the actual size that you see. (Standard CPC6128, 8 bit printer port and HQP45 printer).

For a serious overview of our programmes, please see our advertisement in last months ACU.

BrunWord 6128 with BrunSpell & DataFile. . . . . . £30·00
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Info-Script 6128 with BrunWord & BrunSpell. . . . £50·00
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MIDI COMPATIBLE



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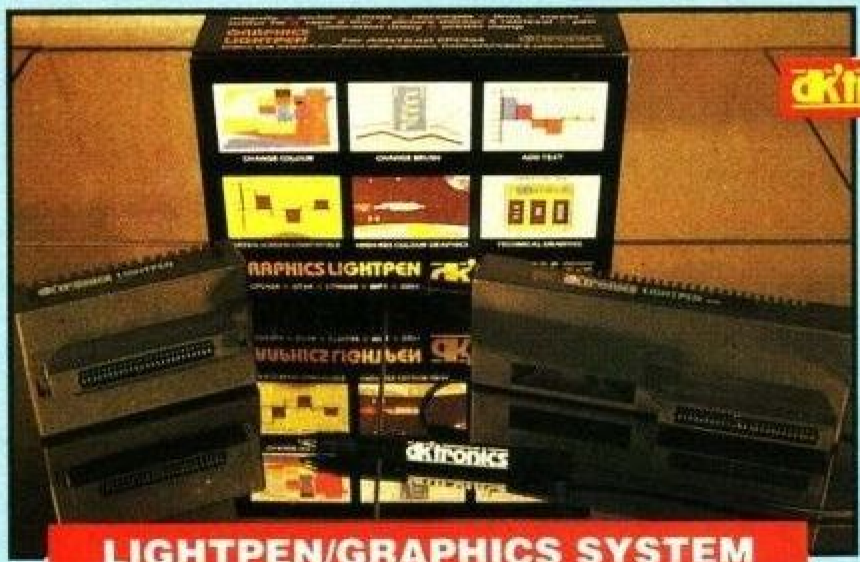
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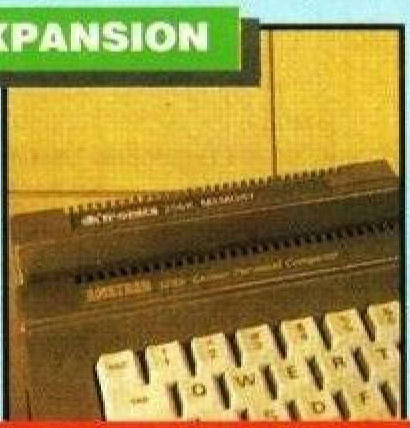
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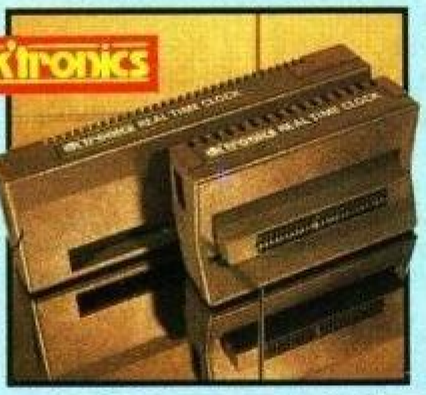
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- All bank switching done automatically by supplied software (cassette 464 - disk 6128).

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64K for 464

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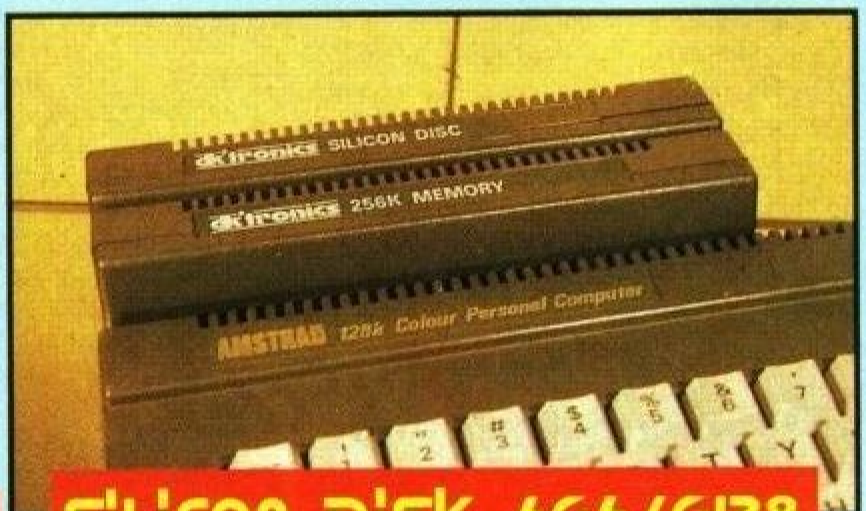
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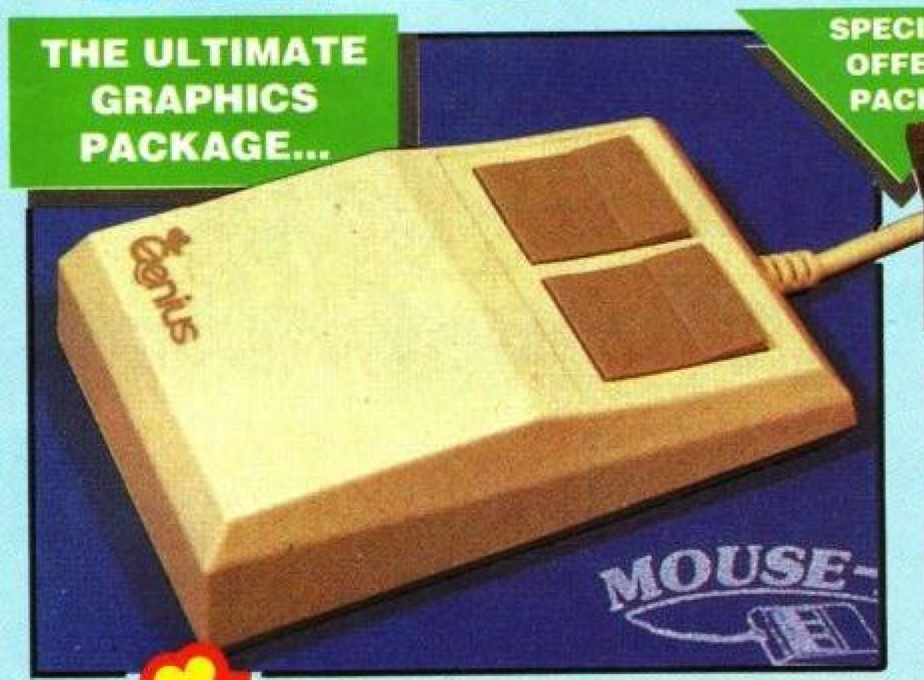
SILICON DISK 464/6128

- This is the fastest storage system available for the Amstrad CPC computers and is compatible with CPM 2.2, CPM+ and all DK'Tronics peripherals.
- The 2516K Silicon Disk is designed to be used in conjunction with at least one normal Disk Drive attached to the system.
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ONLY £129.99
464 or 6128 (Please state which)

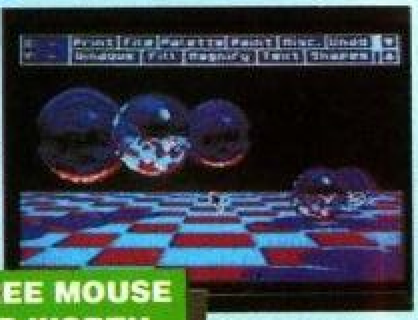
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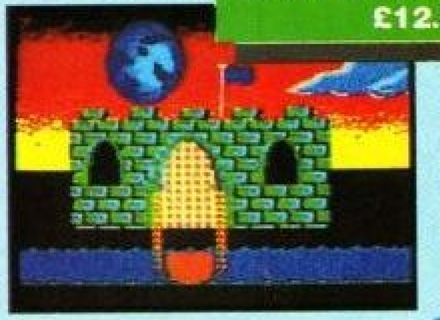


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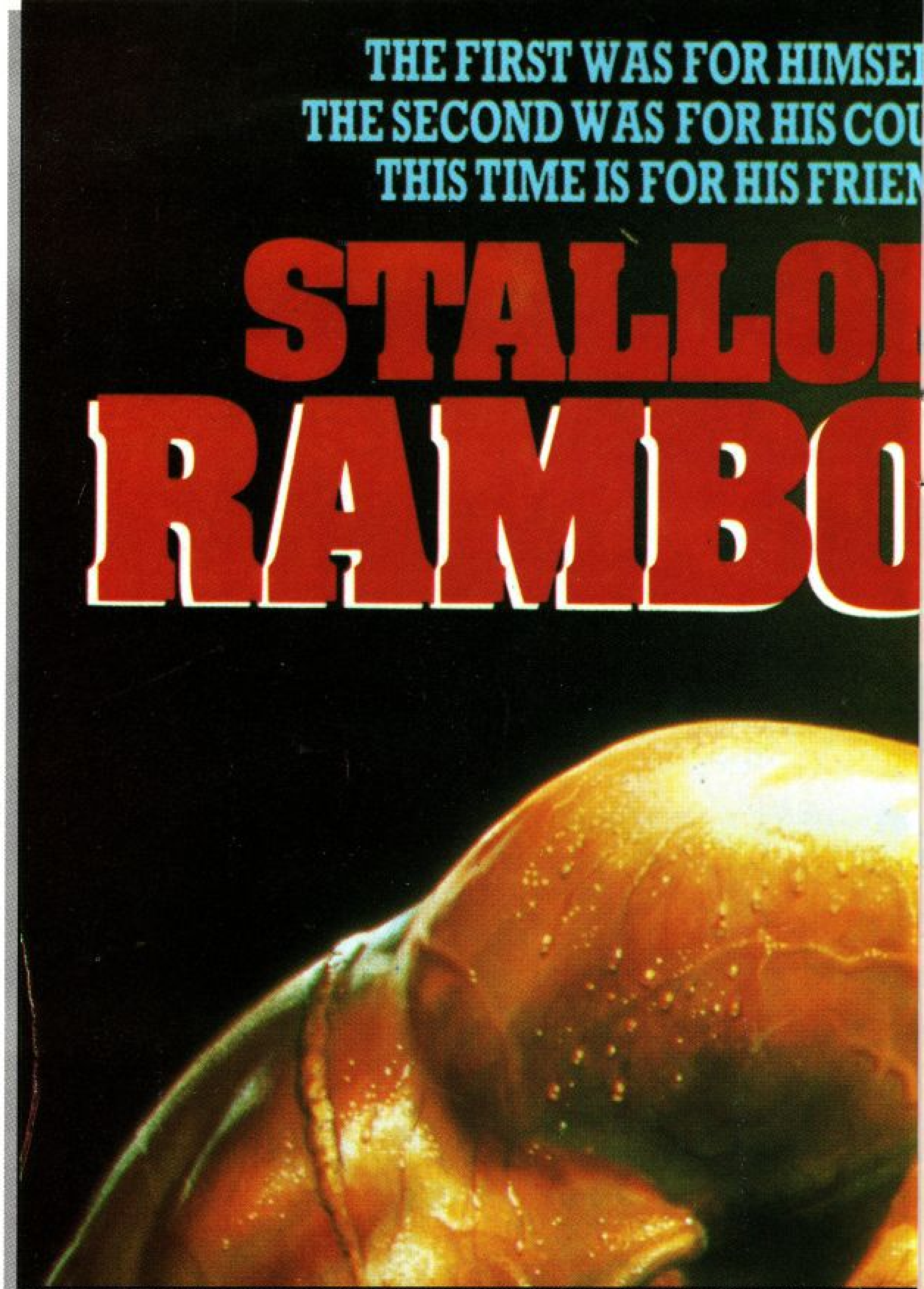
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King of the hill



What makes more money, a film or the games and accessories which follow? Richard Henderson looks into the lucrative world of big film spin-offs.

By the time this magazine reaches the streets, the population of Britain will be in the final stretch of waiting for what most believe to be the biggest film since *Ben Hur*. On August 11 the bated breath will finally be expelled when *Batman – The Movie* arrives. Costing £25 million, it promises to be the most expensive super-hero venture yet undertaken. The set constructed at Pinewood studios, reported to be the largest outdoor set since *Cleopatra* cost £3 million to build and Jack Nicholson, who stars as arch-villian The Joker, demanded £1 million for his services.

Beyond the monetary stories, Batman has also been featured in many journals for its star-filled cast and the adamant behaviour of director Tim Burton, who even still refuses to allow journalists to talk to actors or tour the set. The tabloids have certainly made the most of the press silence, with one Sunday newspaper sending a photographer to capture 'exclusive' pictures from skylights and windows in spiderman fashion.

In the U.S. children have been flocking to certain Warner Brothers films, most notably *The Dead Pool*, for a 90-second preview of Michael Keaton and his rubber Batsuit. With all this marketing potential, there seems to be no other choice than to release a computer game based on the film, Ocean snapping up the rights as soon as the picture was announced.

Batman, of course, is not the only major motion picture to come our way in the next few months which is based on a comic, *Watchmen*, too, has been recognised for what an excellent story it contains. The director of *Brazil*, *Jabberwocky*, *Time Bandits* and *The Adventures of Baron Munchausen* has been handed the task to bring Alan Moore's and Dave Gibbon's greatest strip to the cinema screen. Naturally a computer game based on the exploits of the character is to be released at the same time.

Another of the Ocean licence haul is Clive Darker's *Nightbreed*. This latest film promises many emotions and exotic locations and the plot is not only horror-orientated. David Cronenberg, director of *The Fly* stars in the movie, and special effects abound. Even Gary Bracey of Ocean is to star as a monster in the film.



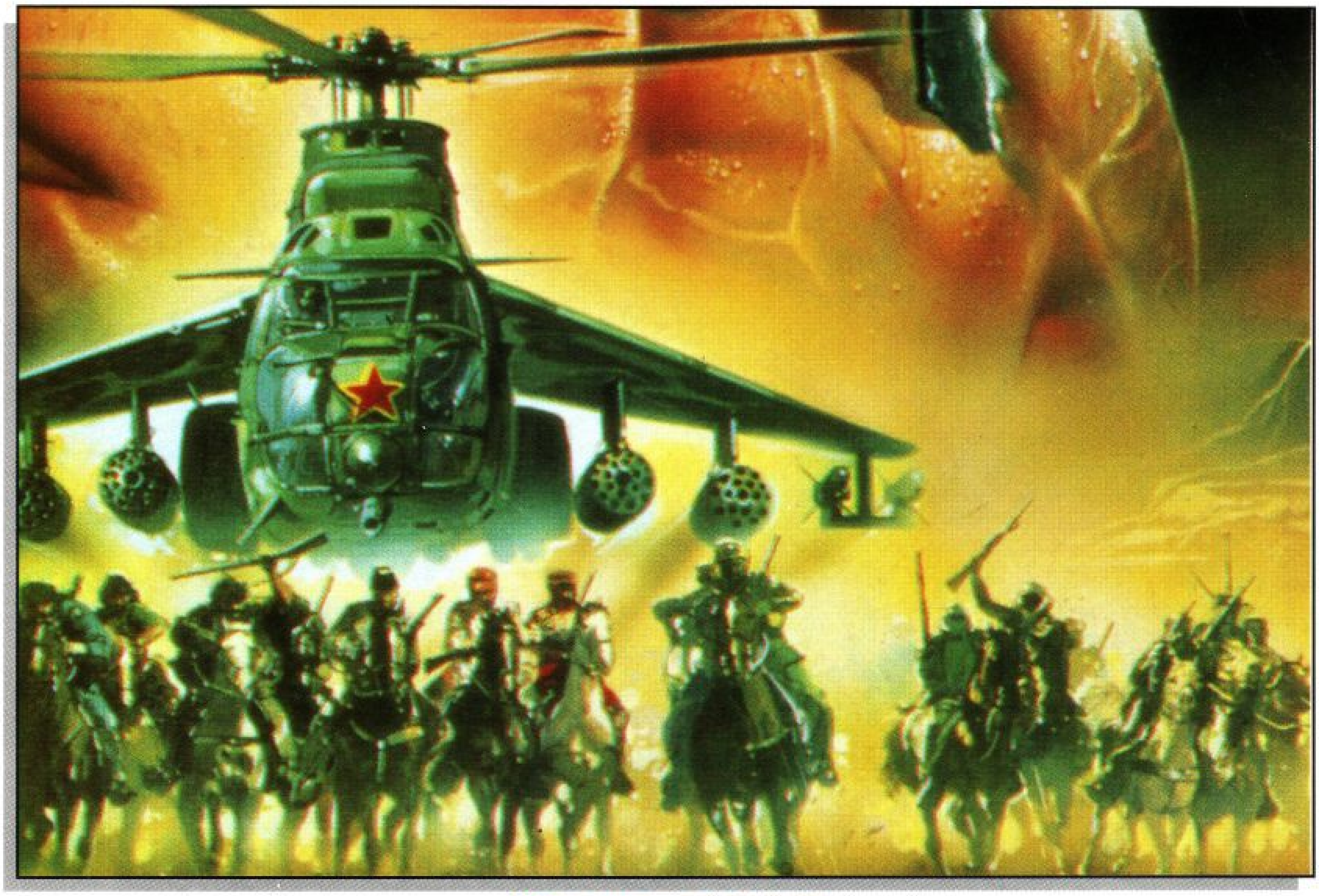
"In the US children have been flocking to certain Warner Brothers films, most notably the *Dead Pool*, for a 90-second preview of Michael Keaton and his rubber Batsuit!"

Based on Barker's book *Cabal*, Nightbreed tells a tale of a murderer on the run who is forced to take refuge in the subterranean setting of Midian, a legendary city where all sins are supposedly forgotten; there he becomes one of the nightbreed, a band of living-dead shape changers.

James Bond makes another appearance this summer in Timothy Dalton's last film as 007, *Licence to Kill* which, as chronicled in the July issue, is to be released as a game by Domark, which is also responsible for the pixelisation of *A View to a Kill*, *Live and Let Die* and *The Living Daylights*. Though many rumours suggesting otherwise circulated freely, Dalton is to continue filming Bond movies way into the 1990s.

Jaws, the Spielberg terror spectacular of the 1970s, is also due to be released on computer, more than 10 years after the release of the picture. *The Running Man*, the July cover game, has finally made an appearance and it is not the first, or last, Arnie film to suffer computerisation. *The Predator* had great success when released and soon to come is the Ocean *Red Heat*, featuring incredibly large sprites and plenty of fighting action.

Other films being worked on which are certain to be converted to the home computer include *Robocop 2*. What is special about this picture, apart from being the sequel to Robocop is that the plot is being written by Frank Miller, the comic book genius whose credits include the much-acclaimed *The*



Dark Knight Returns and *Elektra Assassin*. His entire time is spent scribbling the next tin can adventure and we are bound to see a much larger budget forming than that used on the prequel.

Aliens II has also recently begun shooting, but unfortunately Cyberpunk fans may be disappointed as William Gibson – *Neuromancer, Count Zero, et al* – has had his two preliminary scripts rejected and it looks as if the task has finally fallen on Eric Red to deliver the goods. If anybody is to grab the licence for the picture my money would be on Activision, which did a great job on the game of Aliens.

Those who have their ears constantly to the Hollywood grapevine will know that *Highlander 2 — Yellowknife* is now filming, as is *Ghostbusters 2*. The Last Ghostbuster, *Indiana Jones 3 – The Last Crusade* is, of course, soon to be released, as is its home computer counterpart, and Michael J Fox has signed to do not one *Back to the Future* sequel but two in succession, which means we can have more games based on the short actor's exploits.

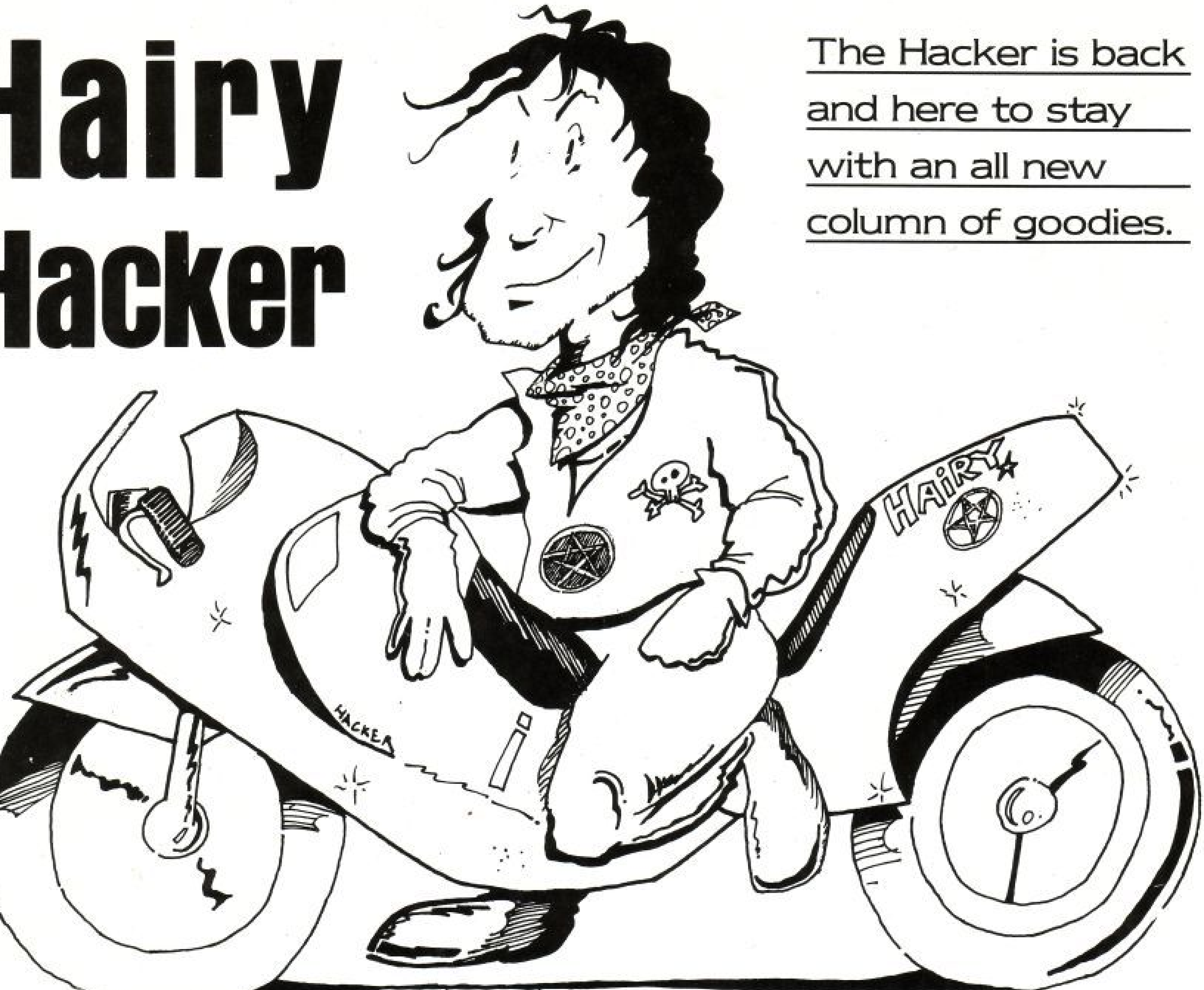
"On the games front we have already seen many good film conversions including Star Wars, The Empire Strikes Back and Return of the Jedi. Others like the Rocky Horror Picture Show, Rambo II & III have all been great successes using the original ideas and gameplay."

On the games front we have already seen many good film conversions, including *Star Wars, Empire Strikes Back* and *Return of the Jedi*, admittedly all from arcade machines. Others like *The Rocky Horror Picture Show, Rambo II & III, Ghostbusters* and *Aliens* have all been great successes using original ideas and gameplay.

Many poor films have also appeared as games. Take *Howard the Duck* as an example – or Howard the Turkey as the critics loved to call it. *Evil Dead* was another, as was *Friday the Thirteenth*.

All said, many film licensed games have been better than those converted from arcade machines and, with many good, big budget films attracting more viewers than ever before – and surely more of a percentage of computer owners than an arcade game – it will be only a short time before most films in the cinema will be followed by home computer versions.

Hairy Hacker



The Hacker is back and here to stay with an all new column of goodies.

First off the starting-block is Richard Graham of Altrincham, who has found that typing the name "FREERIDE" into *Ikari Warriors* makes you almost invincible. In return, he would like to know how to get past the door near the transporter in the 'escape tunnel' in *Monty on the Run*.

The next letter has a one-liner poke for *Ghosts & Goblins:* 10 MEMORY &2000:load"!p":poke %509c,0:poke &5096,&c8:poke &828,0:call &5000. We might as well include it as Jan Cardon from Belgium went to plenty of trouble to get it to me.

There was a fourth communication this month. A map of Activator. Thanks to Peter Mardle and Neil Timpely for sending it.

So you want to hack? You are trying to back-up a game, or crack it to find infinite lives, and it loads a file all in one great block. Games do this to protect against copying without writing novel loaders like speedlock.

Where a normal, sane, binary file has a name, size and other useful information on the front of it, these "headerless files" do not. Not only that, they sometimes use strange synchronisation bytes. I think that is out of order and will reveal a secret of hackery to you.

If you have some kind of debugger/monitor program you stick a breakpoint in CAS_READ and peek at the registers. A glance at the firmware manual will soon tell you what those registers mean and it is only a short trip from there to saving the code. If you do not have a debugger, this sprinkling of machine code will help you:

```
10 'VAX's Headerless file loader
20 '
30 MEMORY &9EFF:OPENOUT"!D":MEMORY
&8000:CLOSEOUT:li=200
40 FOR i=&9F00 TO &A0E7
50 READ a$:a=VAL("&"+a$):POKE i,a
60 ck=ck+a:IF (i AND 7)<>7 THEN 100
70 t=t+ck:READ a$:a=VAL("&"+a$)
80 IF a=ck THEN ck=0:li=li+10:GOTO
100
90 PRINT"eRror in line ";li:END
100 NEXT
110 IF t<>51280 THEN PRINT"You missed
a line":END
120 REM save "vaxcode",b,&9f00,485
will
130 REM save the code,
140 CALL &9F00
150 PRINT"Ready to go"+CHR$(13);
200 DATA 3A,A1,BC,32,F4,9F,2A,A2,428
210 DATA BC,22,F5,9F,3E,C3,32,A1,446
220 DATA BC,21,18,9F,22,A2,BC,C9,3DD
230 DATA 22,22,A0,EB,22,24,A0,32,2E7
240 DATA 26,A0,CD,FF,BB,CD,4E,BB,523
250 DATA 21,27,A0,CD,F7,9F,2A,22,397
260 DATA A0,CD,00,A0,21,34,A0,CD,3CF
270 DATA F7,9F,2A,24,A0,CD,00,A0,3F1
280 DATA 21,43,A0,CD,F7,9F,3A,26,3C7
290 DATA A0,CD,05,A0,21,52,A0,CD,3F2
300 DATA F7,9F,CD,18,BB,FE,20,CA,51E
310 DATA EA,9F,F6,20,FE,77,28,24,460
320 DATA FE,65,20,EE,CD,EA,9F,F5,5BC
```

```
330 DATA 21,C4,9F,22,31,00,3E,C3,2D8
340 DATA 32,30,00,2A,22,A0,ED,4B,286
350 DATA 24,A0,36,F7,23,0B,78,B1,348
360 DATA 20,F8,F1,C9,CD,EA,9F,F5,61D
370 DATA D5,E5,06,09,21,DB,A0,11,376
380 DATA 00,C0,CD,8C,BC,30,16,2A,345
390 DATA 24,A0,EB,2A,22,A0,01,00,29C
400 DATA 00,3E,02,CD,98,BC,30,05,296
410 DATA CD,8F,BC,38,0C,21,95,A0,3B2
420 DATA CD,F7,9F,CD,18,BB,CD,FF,5CF
430 DATA BB,3A,DB,A0,3C,32,DB,A0,459
440 DATA E1,D1,F1,C9,E5,D5,C5,F5,6E0
450 DATA CD,FF,BB,CD,4E,BB,21,B3,531
460 DATA A0,CD,F7,9F,06,04,E1,CD,4BB
470 DATA 00,A0,3E,20,CD,5A,BB,10,2F0
480 DATA F5,E1,2B,CD,00,A0,CD,18,453
490 DATA BB,C7,2A,24,A0,EB,2A,22,3A7
500 DATA A0,3A,26,A0,C3,00,00,7E,2E1
510 DATA B7,C8,CD,5A,BB,23,18,F7,493
520 DATA 7C,CD,05,A0,7D,F5,CB,3F,46A
530 DATA CB,3F,CB,3F,CB,3F,CD,12,3FD
540 DATA A0,F1,F5,E6,0F,FE,0A,38,4B8
550 DATA 02,C6,07,C6,30,CD,5A,BB,3A7
560 DATA F1,C9,00,00,00,00,00,4C,206
570 DATA 6F,61,64,73,20,61,74,20,2BC
580 DATA 2E,2E,20,00,0D,0A,4C,65,144
590 DATA 6E,67,74,68,20,2E,2E,2E,25B
600 DATA 2E,20,00,0D,0A,53,79,6E,19F
610 DATA 63,20,62,79,74,65,20,2E,285
620 DATA 20,00,0D,0A,0A,50,72,65,168
630 DATA 73,73,20,73,70,61,63,65,312
640 DATA 20,74,6F,20,63,6F,6E,74,207
650 DATA 69,6E,75,65,2C,20,57,20,274
660 DATA 74,6F,20,77,72,69,74,65,32E
670 DATA 2C,0D,0A,45,20,74,6F,20,1AB
680 DATA 66,69,6E,64,20,65,6E,74,308
690 DATA 72,79,20,70,6F,69,6E,74,335
700 DATA 2E,0D,0A,0A,00,0D,0A,45,0AB
710 DATA 72,72,6F,72,20,77,68,69,32D
720 DATA 6C,65,20,77,72,69,74,69,320
730 DATA 6E,67,20,64,61,74,61,07,296
740 DATA 0D,0A,00,43,4F,44,45,20,152
750 DATA 45,4E,54,45,52,45,44,0A,211
760 DATA 0D,20,41,46,20,20,20,42,156
770 DATA 43,20,20,20,44,45,20,20,16C
780 DATA 20,48,4C,20,20,20,50,43,1A7
790 DATA 0D,0A,00,41,43,4F,44,45,173
800 DATA 2E,42,49,4E,00,00,00,00,107
```

Type that in, save it and run it. Errors in the typing will be revealed to you as it loads. You can then save the code, as in line 120, or use it there and then.

The progrette resides in the CAS_READ vector and tells you all the relevant information. Then you can hit space to continue as usual, press 'w' to write it out as a normal file, or 'e' to find the entry address, though the program will not run afterwards.

All addresses, sync bytes and so on are displayed in hexadecimal, partly because this is the way most hackers think of such things but mostly because it is much easier to write hexadecimal print routines.

Here is the source code. Feel free to modify it and steal parts of it for nefarious purposes:

```
; The Hairy Hacker's headerless file reader.
; (C) 1989, himself.
nolist

km_wait_key     equu    &BB18
txt_initialise  equ     &BB4E
txt_output      equ     &BB5A
scr_initialise  equ     &BBFF
cas_out_open    equ     &BC8C
cas_out_close   equ     &BC8F
cas_out_direct  equ     &BC98
cas_read        equ     &BCA1

        org     &9F00


;Store the original jump.
        ld      a,(cas_read)
        ld      (oldvec),a
        ld      hl,(cas_read+1)
        ld      (oldvec+1),hl

;Now put my vector in
        ld      a,&C3     ;Jump instruction
        ld      (cas_read),a
        ld      hl,vaxpat
        ld      (cas_read+1),hl
        ret                       ;Back to the real
world....


vaxpat:
        ld      (old_hl),hl     ;Save data address
        ex      de,hl
        ld      (old_de),hl     ;Save length
        ld      (sync),a        ;Save sync byte
        call    scr_initialise  ;Helps if we can read the
screen...
        call    txt_initialise
        ld      hl,ttle
        call    strout  ;Throw out data
        ld      hl,(old_hl)
        call    outword
        ld      hl,lele
        call    strout
        ld      hl,(old_de)
        call    outword
        ld      hl,syle
        call    strout
        ld      a,(sync)
        call    outbyte
        ld      hl,pele
        call    strout
k_get:                         ;What does the user do now ?
        call    km_wait_key
        cp      " "             ;Space just carries on
        jp      z,ld_n_go
        or      &20             ;Turn into lower case
        cp      "w"             ;W writes the file
        jr      z,do_write
        cp      "e"             ;E finds the entry point.
        jr      nz,k_get        ;All else is invalid.

; User wants to find an entry point.
; So, first we read in the file to position the cassette

        call    ld_n_go
        push    af              ;Save exit conditions

        ld      hl,entpat      ;Patch breakpoint routine
        ld      (&31),hl       ;into the restart vector.
        ld      a,&C3
        ld      (&30),a

;Now we fill the code area with restarts
        ld      hl,(old_hl)
        ld      bc,(old_de)
wiplp:
        ld      (hl),&F7        ;This is a restart
        inc     hl
        dec     bc
        ld      a,b
        or      c
        jr      nz,wiplp
        pop     af              ;Restore exit conditions
        ret                     ;Back to the user

;This is the bit that loads the code,
;and writes it out to disc

do_write:
        call    ld_n_go
        push    af      ;Store result of load
        push    de
        push    hl

;Stuff to write file to disc

        ld      b,9         ;Open file for output
        ld      hl,namst
        ld      de,&C000
        call    cas_out_open
        jr      nc,filerr

        ld      hl,(old_de) ;Write out data as binary file
        ex      de,hl
        ld      hl,(old_hl)
        ld      bc,0
        ld      a,2
        call    cas_out_direct
        jr      nc,filerr

        call    cas_out_close
        jr      c,nofier

filerr:
        ld      hl,fiers  ;File error routine.
        call    strout
        call    km_wait_key
        call    scr_initialise

nofier:
        ld      a,(namst) ;Up the first char in name, so
        inc     a         ;next write has different name.
        ld      (namst),a

        pop     hl
        pop     de
        pop     af      ;Return the error status of the
        ret             ;read to user.


;This bit prints out the entry point.
entpat:
        push    hl      ;Save all registers
        push    de
        push    bc
        push    af
        call    scr_initialise  ;We'd like to see the
        call    txt_initialise  ;screen please.
        ld      hl,rtm  ;Tell user what's up
        call    strout

        ld      b,4
sndregs:
        pop     hl      ;Now print out all those registers
        call    outword
        ld      a," "
        call    txt_output
        djnz    sndregs
        pop     hl      ;PC points at next instruction, so
        dec     hl      ;move it back one.
        call    outword
        call    km_wait_key ;Wait for a key to be hit.
        rst     0       ;and reboot time!

;This loads up the regs, & calls original cas routine
.ld_n_go:
        ld      hl,(old_de)
        ex      de,hl
        ld      hl,(old_hl)
        ld      a,(sync)
oldvec: jp      0
```

```
strout;                     ;Print an ASCIIZ string from HL
        ld      a,(hl)
        or      a               ;Check for null
        ret     z
        call    txt_output      ;Print next char
        inc     hl
        jr      strout

outword;                    ;Output HL as 4 chars,
        ld      a,h
        call    outbyte
        ld      a,l     ;Fall into outbyte

,outbyte;                   ;Output byte in A as 2 chars,
        push    af
        srl     a
        srl     a
        srl     a
        srl     a
        call    outnib
        pop     af
                            ;Fall into outnib,

outnib;                     ;Output lower half of A as char,
        push    af
        and     15
        cp      10
        jr      c,alfad
        add     7
alfad;
        add     48
        call    txt_output
        pop     af
        ret

old_hl  dw      0
old_de  dw      0
sync    db      0

ttle;   db      "Loads at .. ",0
lele;   db      13,10,"Length .... ",0
syle;   db      13,10,"Sync byte , ",0
pele;   db      13,10,10
        db      "Press space to continue, "

        db     "W to write,",13,10
        db     "E to find entry point,",13,10,10,0
fiers;  db     13,10,"Error while writing data",7,13,10,0
rtm     db     "CODE ENTERED",10,13
        db     " AF   BC   DE   HL "
        db     "  PC",13,10,0
namst   db     "ACODE.BIN"
```

The F7 is a re-start instruction. When the program you are cracking – sorry, backing-up – tries to run this, it calls the subroutine stored at 30H instantly. This is where my piece of code lives and that obligingly tells you what the victim program is using for an entry point.

Remember that doing a RUN" of a binary program causes all memory to be erased. So any binary code has to be loaded and then CALLed, or it will not do much good. Loading addresses can be found by de-protecting the loader – usually in Basic if there is one – or from Matt Cawley's "Excat" program, Utopia or similar.

> "Them pokeys ought to keep most of you busy for a month or so, by which time I will probably have another bucket load of goodies."

A welcome name just sprang into sight at the foot of the last letter – John "Hackman Girvin". He is in difficulty with his faithful tape deck going into reverse. This hack is for *WEC Le Mans*, and gives you three things you do not normally have – infinite time, no other competitors to force you off the road and invulnerability to hitting such things as lamp-posts, signs and tree-shaped objects. Also, your speed does not go down when you drive off the road.

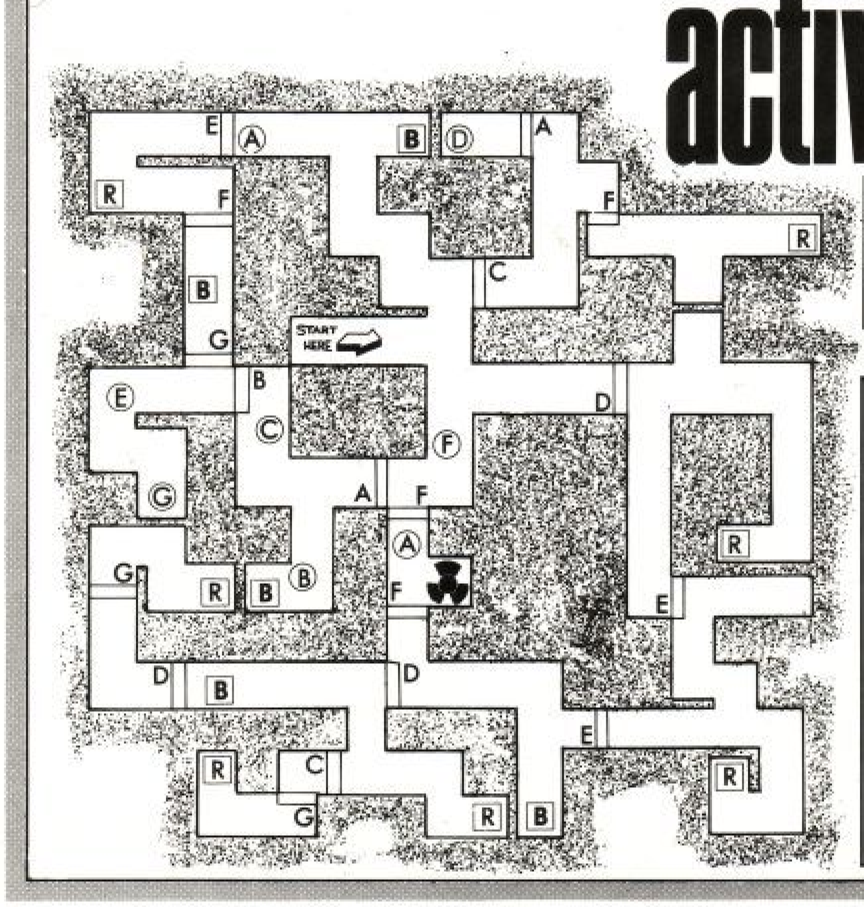
Here is the poke; you run it, put it in the re-wound tape – or fast forwarded if your tape deck is doing John Girvin impressions.

Thank you for that pokette, and good luck with the hacking of *Afterburner*.

Them pokeys ought to keep most of you busy for a month or so, by which time I will probably have another bucket-load of goodies waiting for you. Now it is time to try for a snappy ending but only rubber bands have snappy endings, so have this one. If at first you don't succeed, try again at greater speed.

```
  1 'WEC LE MANS hacks
  2 'By John Girvin
  3 'April 1989
  4 '
 10 MODE 1:CALL &BC02
 20 LOAD "wec",&99C5
 30 RESTORE:addr=&BE80
 40 READ byte$
 50 IF byte$="LEMONS" THEN GOTO 90
 60 POKE addr,VAL("&"+byte$)
 70 addr=addr+1
 80 GOTO 40
 90 MODE 1:CALL &BE80
100 '*** LEAVE 110-170 IN ***
110 DATA 3e.03,21,8e,bc,32,16,bd
120 DATA 22,17,bd,c3,c5,99,cd,37
130 DATA bd,21,00,00,22,4b,ab,21
140 DATA a0,be,22,4c,ab,c3,08,a6
150 DATA dd,21.b8,a8,11,ab,00.cd
160 DATA 47,a8,21,b3,be,22,61.a9
170 DATA c3,e2,a8,3e,c9
180 'Infinite time
190 DATA 32,42,13
200 'Remove other cars
210 DATA 32,f7,0e
220 'Invulnerability etc.
230 DATA 32,ab,0b
240 '*** LEAVE 250-260 IN ***
250 DATA a4.48,4c.46,04,89.c3,72
260 DATA 80.LEMONS
```

activator map.



You must pick up the appropriate pass and take it to the door which then allows you to get through, you then have to take all the rods R to the reactor room.

You are here, I think.

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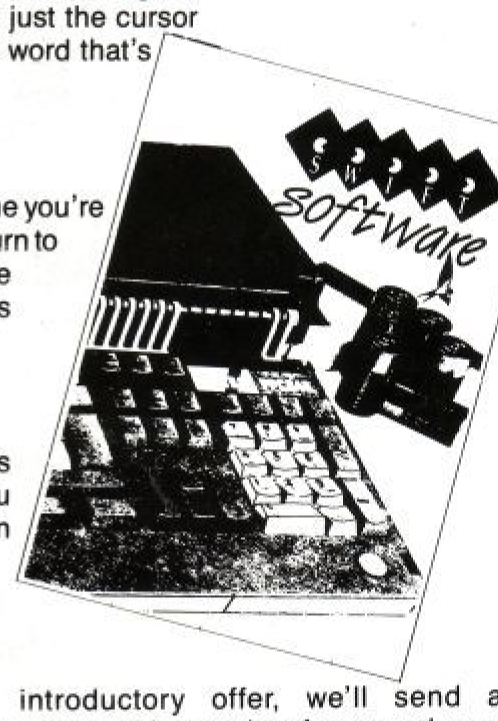
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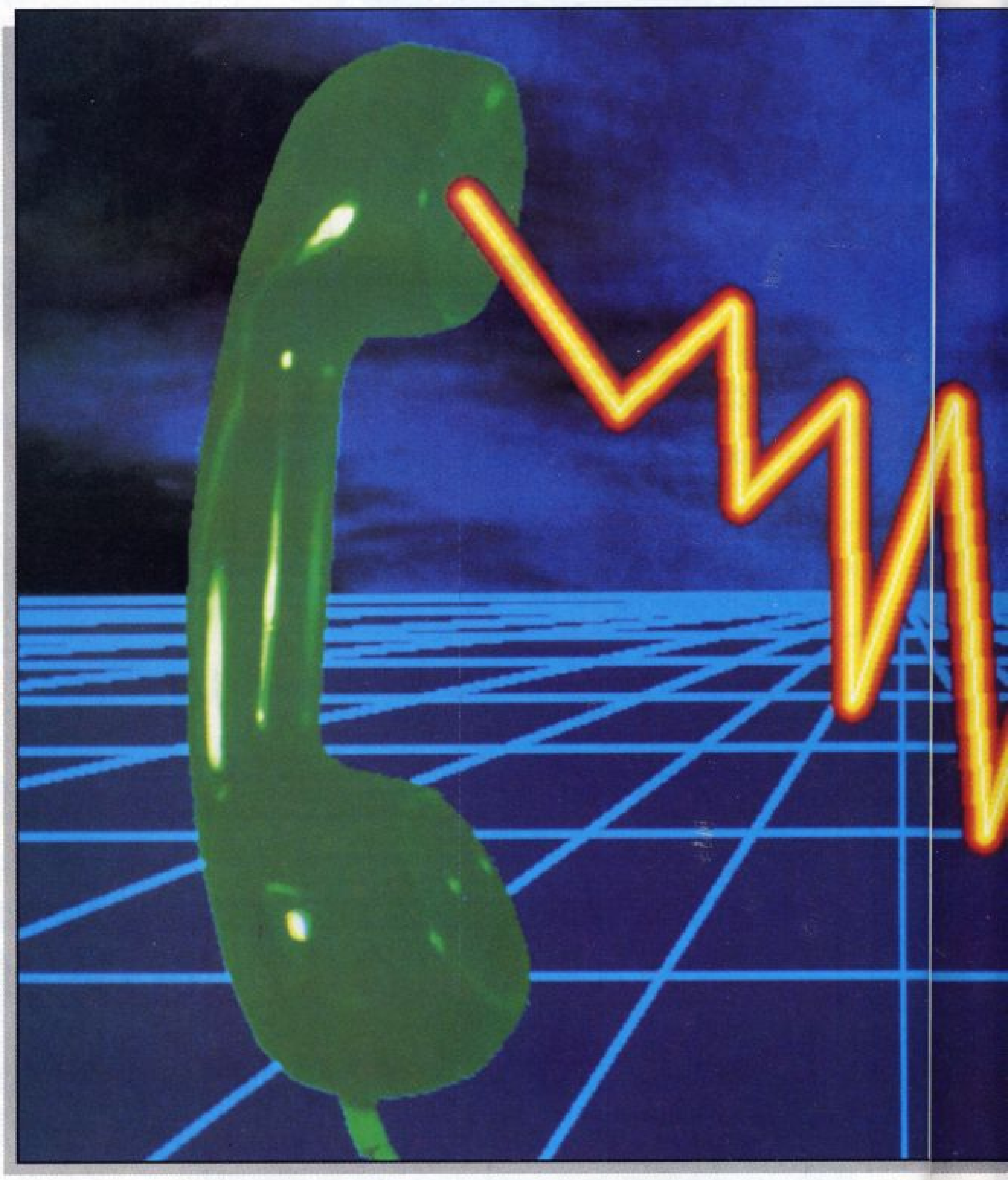
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Packet Radio

As the lure of the bulletin boards increases so do the phone bills. One way round this costly problem is the age old technique of packet radio.



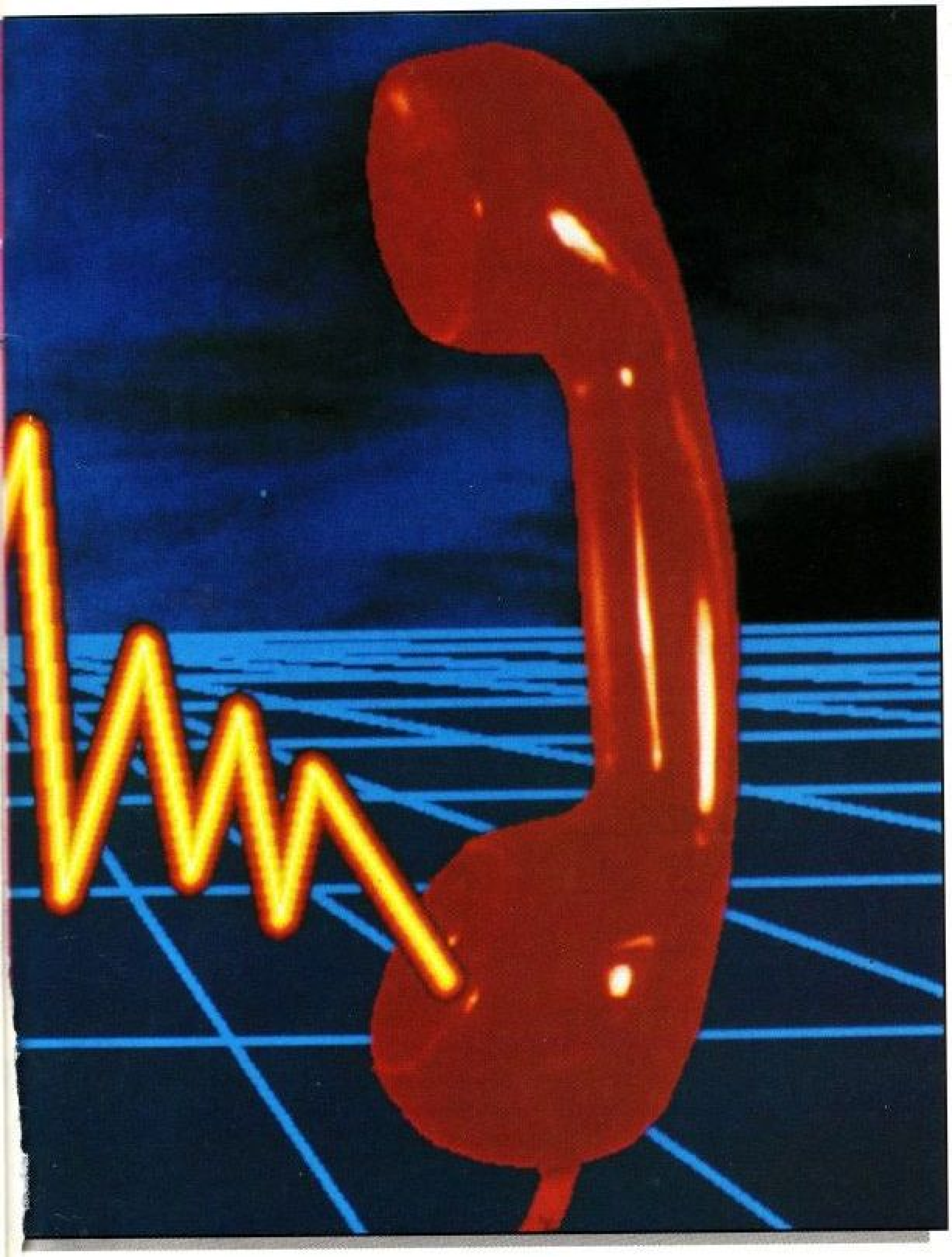
If you are an avid communications user you will know how expensive your hobby can be. For many, the thrill of being able to log on to a bulletin board leads only to debt with the telephone company.

Those in debt are disconnected for not being able to pay the extortionately high cost of owning and using a telephone. For those who face an expensive or have already had a high telephone bill, listen – there is an alternative at hand.

Rather than lining the pockets of British Telecom shareholders, losers can turn to another method of computer communication. Radio hams might have already guessed the alternative. Packet Radio could change computer communication significantly.

Packet Radio is not a new concept. The Americans have been using radio to transmit and receive computer data for about 10 years. In the U.K. Packet has only recently gained ground as a widely-used medium for data transmission but already there are thousands of radio hams talking to each other in binary form.

Even though Packet Radio is a completely different medium from telephone transmissions, the way both are used is similar and many comms users will feel at home with it. Radio is normally used for one-to-one communication between two radio hams. Packet Radio is no exception to the rule, though there



> "Using a bulletin board can be rewarding as you can do many things with them."

are hundreds of bulletin boards and they operate in the same kind of way as those available over the telephone lines.

Using a bulletin board can be rewarding, as you can do many things with them. One of the main purposes for which they are used is to send electronic mail to pen friends and to up-load and down-load files. Many of the files available consist of utilities and demonstrations, most of which are of premium quality and are in the public domain.

To use Packet Radio, first, and most important, you need to be an amateur radio operator. This legally requires an operator's licence which will cost £12. Before you can get your licence you need to pass an examination based on your knowledge of radio.

The examination is set by the City & Guilds Board and there are two a year. You have already missed the May examination and the next one is due for December. The paper is in two parts, both of which must be completed.

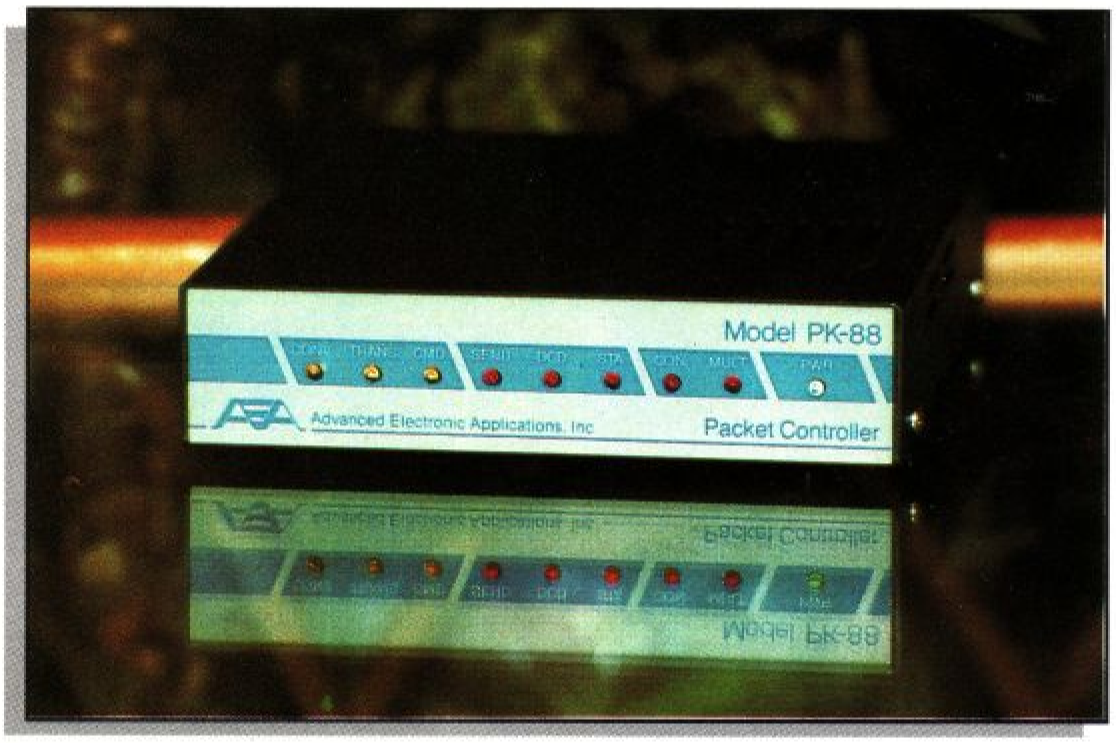
To learn for the examination you can choose any method you like. The easiest but not necessarily the cheapest would be to attend a course on the subject. Some adult institutes and education authorities run such courses and you should contact your local authority to find if there are any courses in your area. I have included some names and addresses of establishments which have held such courses. Courses usually begin in September and prepare the candidate for the following May examination. Further, most courses are held as evening classes.

With certificate in hand you can buy your licence. With that you will be assigned a call sign, a number of digits and letters which are tagged on to the beginning of all transmissions which are addressed to you. Your radio will receive them and pass on only those which are for you. Likewise, the sender's call sign will also be tagged to the message so that the recipient will know its origin.

Like data telecommunication systems, you will require a modem to modulate the outgoing signal and to demodulate the incoming one. If you already own a modem for use over the telephone lines you are in for some bad news. Such a modem will be of no use to Packet Radio. Those modems produce data in long sequential streams, whereas Packet Radio requires data to be transmitted in packets.

Your new modem should be in the form of a Terminal Node Controller. They package the data automatically and are already set up for use with radio and incorporate the appropriate connectors at the rear.

Three typical TNC modems are sold by leading packet radio specialist Andrews Computer Services of Watford. They are the AEA PK88 modem, which allows use of both HF and VHF Packet Radio, and costs £129.95. If you are looking for something a little cheaper you might like to consider the Pac-Comm Tiny-2. It costs £109.95 and allows usage of VHF Packet only. If you have plenty of money and want the best you can turn to the all-singing, all-dancing AEA PK232 which will cost £279.95.



All those modems are equipped with an RS232 interface. Unfortunately, Amstrad CPC computers do not have one of them built-in and so you will need to buy one if you do not already own such a device.

To use Packet Radio to its full potential you will require some specialised software. If you already have communications software you will be able to use it with Packet but you will be short of functions, file transfer especially. Dedicated Packet Radio software costs very little, as it is public domain. Once you have this you will have all the computing equipment you need to begin.

All you need then is the radio equipment. Radios can cost a small fortune but if you are prepared to pay the cost of a new radio you might be saving yourself a good deal of trouble in the long run.

If you attend any radio rallies you should be able to pick up a suitable unit for about 50 pence but it will be a very basic unit and is likely to be just single-channel. Such a unit will need to be re-tuned and so, unless you are confident you could do it yourself, it will have to be done by a radio shop or obliging friend.

A typical new radio might be the Yaesu FT211R which has some special features which aid Packet Radio users. This costs about £250 and is fully-functional FM radio as well as being designed for Packet.

Packet Radio operates on a number of frequencies. The most popular is 144.650MHz VHF. This channel is incredibly busy and is the rendezvous for many bulletin board systems and network nodes.

"There are hundreds of bulletin boards in the U.K. and finding them all will be an education."

A network node is a radio substation. Calls are put through a network node if they are travelling a long way. The node receives the transmission and passes it on to the next node. The signal is passed on and on until it is close enough to the described recipient. It then sends the signal to the destination.

Another busy channel is 144.675MHz VHF. Here many one-to-one conversations take place. The next busiest frequency is 432.61MHz FM. Other channels include 70MHz VHF, 50MHz VHF and 1,296MHz VHF and 14.105MHz on HF.

Finally, you will need an aerial. The better the aerial the better your signal will be and you will be less likely to get interference. If you have run out of money at this point you could make an antenna. Just throw off your best overcoat or wedding suit from that old wire coat hanger and adjust the hanger slightly with two pairs of strong pliers and you have a home-made aerial. Just attach some coaxial lead to it, place it in a prominent position close to a window and you can start.

All that work has finally paid off and you are now a fully-flegged Packet Radio user you might like to join a local amateur radio club and begin to become more and more involved. Amateur radio is a very broad field. There are millions of users all over the world, many of whom are now tuning to Packet Radio. There are hundreds of bulletin boards in the U.K. and finding them all will be an education. The fact is that Packet Radio is going places – places where no computer comms user has gone before.

Space, the final frontier? Well, possibly. At this moment there are hundreds of radio waves bouncing off a satellite hundreds of miles above the earth – a special packet radio satellite. Sounds fun? Well, it is not too expensive to get into and there is no harm in trying.

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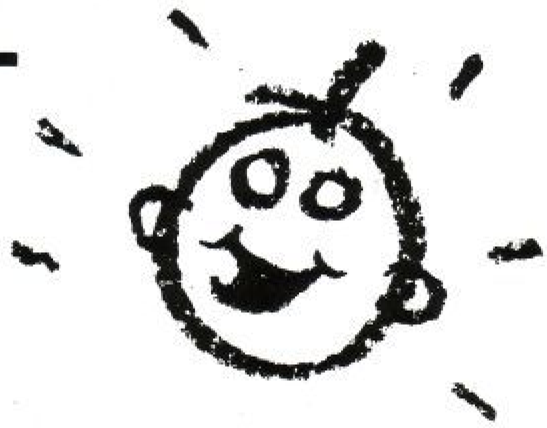
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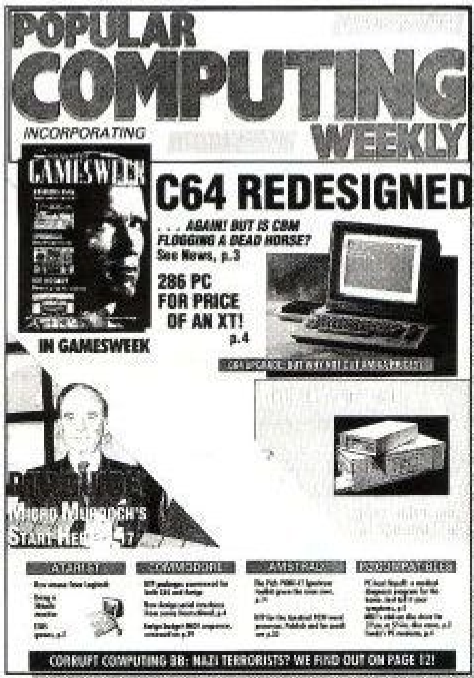
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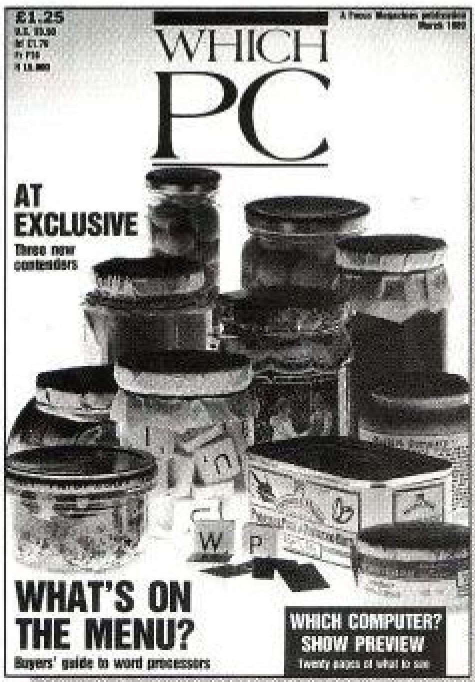


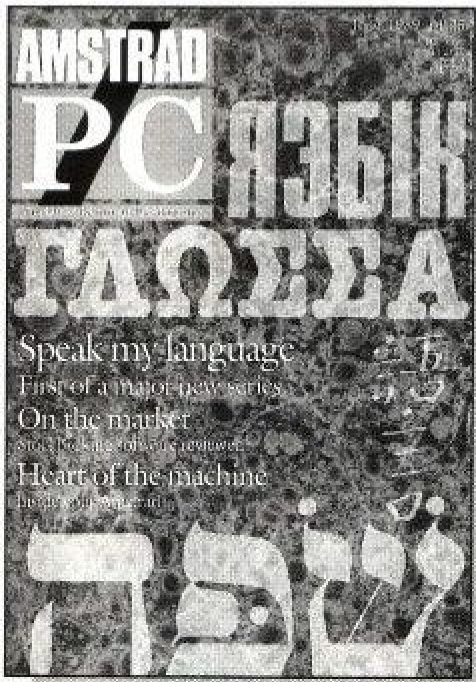
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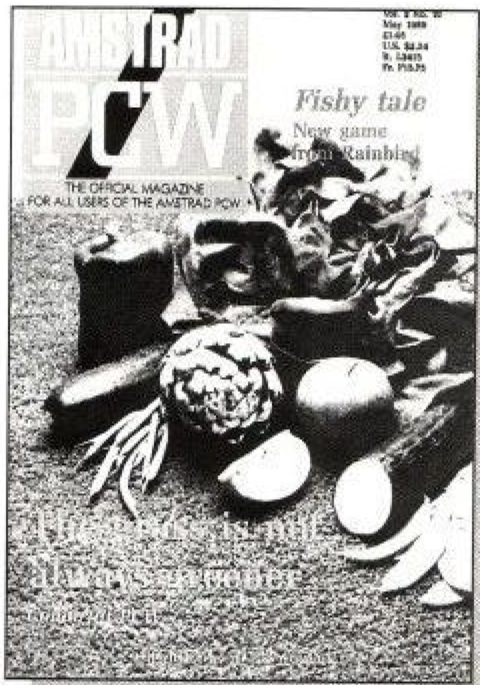
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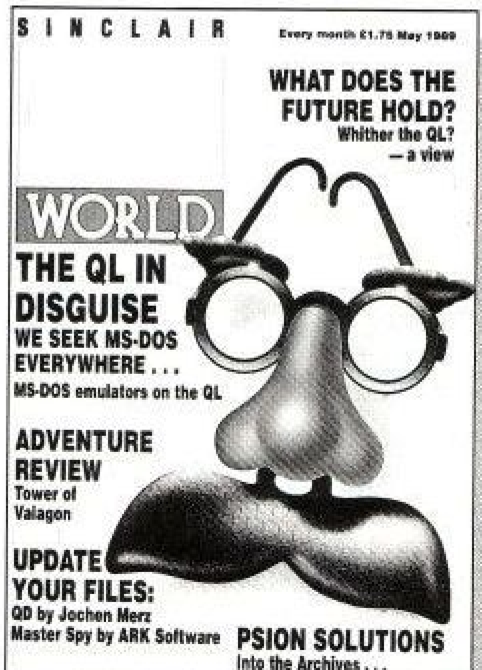




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Welcome to Auntie John's Summer Column



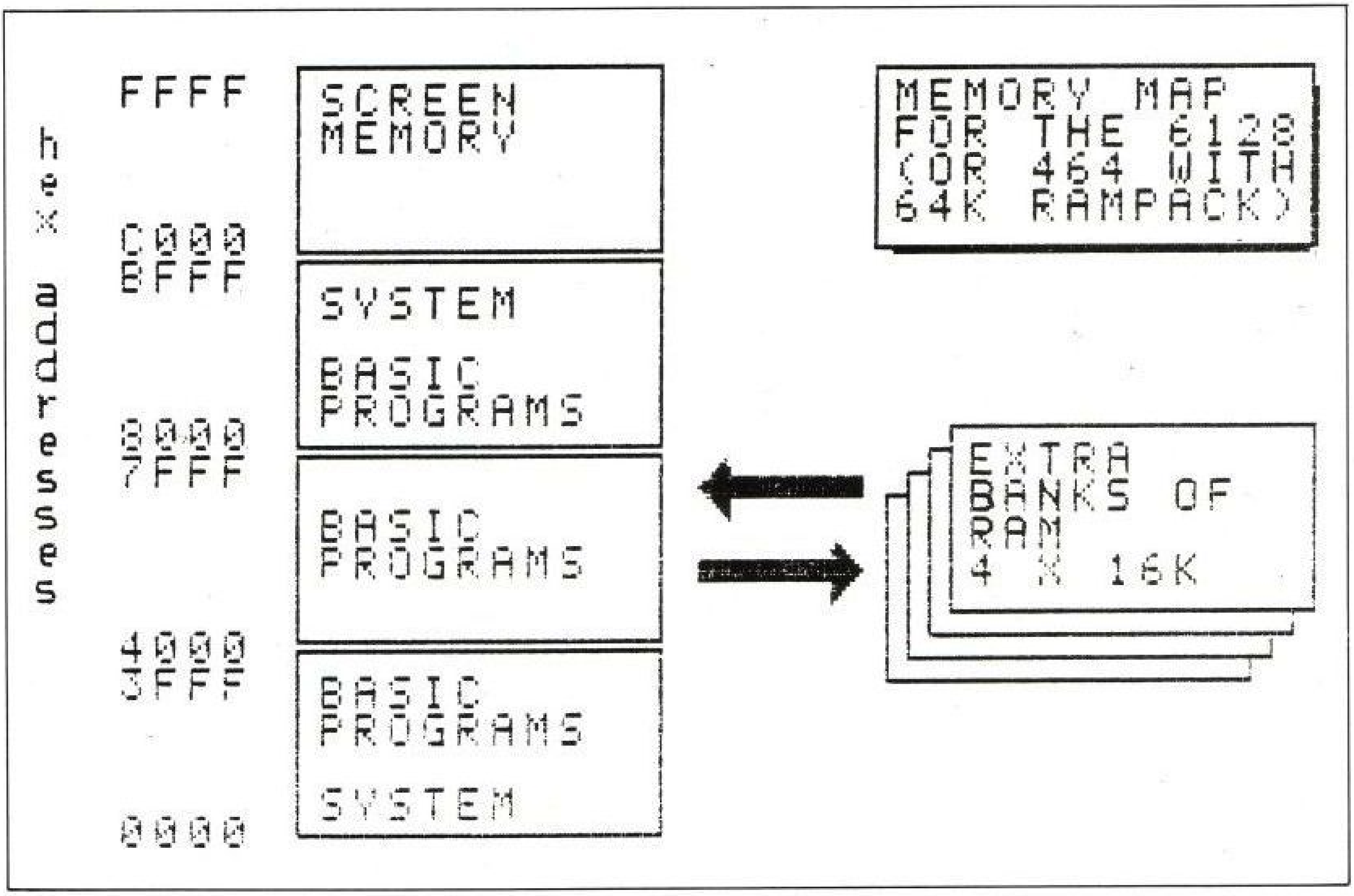
This month we look at the extra memory CPC6128 owners have. Most of the time the memory is unused by the Basic and machine code programmer and it rests on the sidelines doing nothing. That is a pity because computer memory is expensive and potentially very useful. Although it is many times cheaper than it was 10 or so years ago, world shortages recently have pushed up its price again. The moral is if you have it, use it.

Deep inside your beloved grey plastic box is a tiny chip of silicon encased it a little plastic packet and called a Zilog Z-80 microprocessor. The Z-80 is now getting rather old, though they have been saying that for years, and is what is referred to as an 8-bit microprocessor. The eight bits does not mean that inside it are eight pieces but that the information is moved round inside the computer in the form of packets of data eight bits wide.

Remembering that a bit is an ON or OFF signal, you can imagine that eight separate wires are needed to carry information from one part of the computer to another. To store all that information a 16-bit address system is used. If you know binary arithmetic you will realise that 16 bits will give 16,384 * 16,384 separate addresses and so the Z-80 can access 64K of memory directly, where 1K equals 1,024 bytes and one byte equals eight bits.

Experienced programmers will laugh at this point, since everybody knows about bits and bytes. They might, however, pause for a second when they realise that the CPC6128 manages to break a few of the rules they hold so dear.

The Z-80 was de-signed to be able To use 64K



Summer is here at last, school is almost out and John Kennedy has slipped into something casual to examine the extra memory on CPC6128s.

of memory and in a CPC6128 there is more than 170K of memory.

The CPC range was designed to make use of a technique called bank switching, by which the necessary portion of memory is switched on only when it is needed and so the 64K maximum rule is never violated. The 170K memory exists but the Z-80 is allowed to look only at certain parts of it at a time.

The design of the CPC allows yet more memory to be provided by ROMs and EPROMs. They overlap the bottom and top of the possible memory map and contain the operating system, Basic and, if disc drives are present, the code needed to use them. Other programs such as word processors, assemblers and even other languages can also be stored in ROM and switched in when needed.

This sounds complicated but all this is completely transparent to the user, to whom it appears that the programs in ROM are like any other program, except that they take up no RAM and they load instantly. The switching of ROMs, EPROMs and RAMs is done from another of the chips in the CPC, called the gate array.

The firmware routine situated at address &BD05 will allow us to choose which 16K RAM bank goes where – figure 1. This machine code does not exist on a 464 or 664, so even if extra memory packs are pluged into those machines the CALL &BD05 routine will not work. Unless, of course, someone supplies you with the necessary code. Some memory packs code with suitable code.

The extra 64K of memory on the 6128 is split into four banks, each 16K in size. There are several configurations all the memory banks can take but the ones on which we concentrate on are those which switch the memory in and out of the addresses from &4000 to &7FFF. This block is in a good place to shift in and out and will form the basis for the subroutines which follow.

Moving round the banks of RAM can be a nasty business, especially if you are trying to execute a program in one at the time. The computer would be running a program when the program vanishes and the computer becomes paranoid. The hardware also expects the screen display to occupy one of two places and will refuse to agree to any other locations, so take care when experimenting. You will not break anything but you can easily get into a situation where only a total power-down will save the day. It is interesting that the contents of the extra memory are not re-set whenever the ESC — SHIFT — CONTROL keys are pressed, so any picture or other data will not be affected by a minor crash – but do not take it for granted.

So what will we do with all this extra memory? The following machine code will allow you to store and retrieve screen images to and from the banked RAM. You will also be able to look at a miniature version of each stored screen so that you

can see what is happening. The machine code makes use of the RSX system, so you will not have to remember hex addresses. As an act of unheard generosity, I will even give you the hexcode in a Basic program.

Program 1 is the assembly language listing. The material at the start is all the machine code needed to set up the RSX table. Notice how each routine extracts some parameters – the numbers which follow the RSX – and uses them to choose the bank of RAM in question. Each RSX must check that one, and only one, parameter is supplied and that the parameter is in the desired range. If this is not the case the routines return to Basic without doing anything; you might

Listing 1 – The assembly language listing.

```
;Assembly Language Program to Store and Fetch screens
;from the extra memory on a CPC6128.

log_rsx equ &bcd1
next_line equ &bc26
rambank equ &bd5b

        org &8000

        ld bc,commandtable
        ld hl,buffer
        call log_rsx
        ret

.buffer ds 4

.commandtable
        dw nametable
        jp storescreen
        jp fetchscreen
        jp miniscreen

.nametable

        db "STORESCREE","N"+&80
        db "FETCHSCREE","N"+&80
        db "MINISCREE","N"+&80
        db 0

.storescreen

;Store screen display in extra memory.

        cp 1             ;Return to BASIC if there isn't exactly
        ret nz           ;one parameter.


        ld a,(IX)        ;Make sure the parameter is in the
        cp 5             ;range 1-4, and if not
        ret nc           ;return to BASIC.
        cp 0
        ret z

        add 3            ;Adjust the number, and call the
        call rambank     ;firmware.

        ld hl,&c000      ;The start of the screen memory.
        ld de,&4000      ;The start of the Ram Bank.
        ld bc,&4000      ;The length of the screen.
        ldir             ;The magic machine code instrucion LDIR!

        ld a,0
        call rambank     ;Put back the original RAM bank.
        ret              ;and back to BASIC we go..


.fetchscreen

;Copy screen image from extra RAM to the screen.

        cp 1             ;Check for one parameter.
        ret nz

        ld a,(IX)
        cp 5
        ret nc
        cp 0
        ret z            ;Check for range 1 to 4.

        add 3            ;Adjust it and use the firmware
        call rambank     ;to bank in the next memory.

        ld de,&c000      ;Move data FROM this address
        ld hl,&4000      ;TO this address
        ld bc,&4000      ;THIS amount,
        ldir             ;with this instruction.

        ld a,0
        call rambank     ;Put original memory back.
        ret

.miniscreen

;Draw a miniture version of the image held
;in banked memory.

        cp 1
        ret nz                   ;Check for a parameter.

        ld a,(IX)
        cp 5
        ret nc                   ;Return if out of range.

        cp 0                     ;The parameter value of ZERO
        jr z,special             ;is a special case.

.mini
        add 3


        push af
        call rambank             ;Switch  on the RAM bank.
        pop af

        ld hl,&c000              ;Set a different screen position
        cp 4                     ;for each Banked RAM image to be
        jp z,shrink              ;drawn at.

        ld hl,&c028
        cp 5
        jp z,shrink

        ld hl,&e3c0
        cp 6
        jp z,shrink

        ld hl,&e3e8


.shrink

        ld b,100                 ;The height of the mini-image.
        ld de,&4000              ;The address stored image.
        .loop1
        push hl                  ;Store the start addresses.
        push de
        ld c,40                  ;The width of the mini-screen.

        .loop2
                ld a,(de)        ;Copy the data from the stored
                ld (hl),a        ;image to the actual screen..

                inc hl
                inc de:inc de    ;Update the screen addresses.

                dec c
                ld a,c
                jr nz,loop2      ;End of 'width' loop

        pop hl                   ;Cunningly read DE into HL
        call next_line           ;and move it down a line
        call next_line           ;or two and
        ex de,hl                 ;then swap it back.

        pop hl
        call next_line  ;Move HL to the next line.

        djnz loop1               ;End of 'height' loop

ld a,0                           ;Put the original
call rambank                     ;block of RAM back in place.
ret

special

;Draw all the RAM banks, 1 to 4.

ld a,1:call mini
ld a,2:call mini
ld a,3:call mini
ld a,4:call mini

ret
```

Listing 2 – The Basic HexCode loader program.

```
10 ' Machine Code Hex Loaded
20 ' SAVE program before running
30 '
40 MEMORY &7FFF
50 s=0
60 FOR a=&8000 TO &80E7
70 READ b$:b=VAL("&"+b$)
80 POKE a,b
90 s=s+b
100 NEXT a
110 IF s<>&6889 THEN PRINT "Error in data."
120 CALL &8000
130 PRINT "RSXs installed."
140 NEW
150 DATA 01,0E,80,21,0A,80,CD,D1,BC,C9,8C,9F,0E,80,19,80
160 DATA C3,3A,80,C3,5C,80,C3,7E,80,53,54,4F,52,45,53,43
170 DATA 52,45,45,CE,46,45,54,43,48,53,43,52,45,45.CE,4D
180 DATA 49,4E,49,53,43,52,45,45,CE.00,FE,01,C0,DD,7E,00
190 DATA FE,05,D0,FE,00,C8,C6,03,CD,5B,BD,21,00,C0,11,00
200 DATA 40,01,00,40,ED,B0,3E.00,CD,5B,BD,C9,FE,01,C0,DD
210 DATA 7E,00,FE,05,D0,FE,00,C8,C6,03.CD,5B,BD,11,00,C0
220 DATA 21,00,40,01,00,40,ED,B0,3E.00,CD.5B,BD,C9,FE,01
230 DATA C0,DD,7E,00,FE,05,D0,FE,00,28,48,C6,03,F5.CD,5B
240 DATA BD,F1,21,00,C0,FE,04,CA,AD.80,21.28.C0,FE,05,CA
250 DATA AD,80,21,C0,E3,FE,06.CA,AD.80,21,E8,E3,06,64,11
260 DATA 00,40,E5,D5,0E,28,1A,77,23,13,13,0D,79,20,F7,E1
270 DATA CD,26,BC,CD,26,BC,EB,E1,CD,26,BC,10,E5,3E,00,CD
280 DATA 5B,BD.C9,3E.01,CD,8B,80,3E,02,CD,8B,80,3E,03,CD
290 DATA 8B,80,3E,04,CD,8B,80,C9
```

like to add a routine to print an error message.

Program 2 in the Basic program will create the RSXs and then nuke itself so save it before running. When all is working you will have three RSXs logged on to your system – STORESCREEN, FETCHSCREEN and MINISCREEN. They all need the number of a RAM bank to use a number from 1 to 4. MINISCREEN is special because it also can take the number from 1 to 4. MINISCREEN is special because it also can take the number 0 after it. Try it and see what it does.

Program 3 is a short demonstration you can run after getting the RSXs to work. You must save a screen to disc or tape with which the program can load or, alternatively, you could write a short routine using DRAW and PLOT to put squiggles on the screen.

So the extra memory is put to good use. If you want a good exercise in programming, try using the RSXs to supply you with some pull-down menus. Pull-down menus are menus which appear on the screen, covering anything which was there previously. Whenever a choice is made from the menu they disappear and anything underneath is re-drawn. You can use STORESCREEN and FETCHSCREEN to protect the contents of the screen under the menus.

Listing 3 – A short Basic demonstration program.

```
10 ' Example Basic Program
20 'RSX's MUST already be defined!
30 MODE 1
40 LOAD "screen",&C000:'A screen display of your own design.
41 REM Preceed name with ! if using a tape (spit) system
50 FOR a=1 TO 5
60 FOR b=1 TO 4
70 |STORESCREEN,b
80 NEXT b
90 |MINISCREEN,0
100 'try changing 0 to 1 above
110 NEXT a
```

COMPETITION

```
I E C H C W V Z A Z S S T D Y L N E T Q Q T N K P
T M Z T L E B C D D D E W M I I G W J Z Q U W S E
S Z Y D Q B W K P R D S I G O B R F W S M S O C B
S D I A A C V O A C C R H T L U T E N O R K R W B
G O O I G D Q C P A J T E A I R S O P E A D D L P
O T M S G S S Q N F P O N S M L I E M A F Q P T G
S M Y Y A M R N O E S K S J S S I A M A P P R Q L
R A W W E T E E N Z M E O T N L E T X A E F O Y M
E T W H E R F S T E O Y V A E R A M U R T V C Z A
V R Q E S G L K D N S C P I T E A B I C D S E A T
O I V E O F D I C T I X O S R C H P E K I C S Q H
C X W L V Q A M I D E R E M H D H S U L J E S H S
T P S P T Q S C R Y I P P I P E D Q D D S Z O F C
S R E R W L K X R I A D N R R U M R R A N V R L O
U I S I C S E O J T C E T A E L T Z A L E Q S B P
D N A N J L M V M M S A L B B S X E E H N R C G R
U T B T C E W H H B N S E D T Q A A R A S C P Y O
A E A E M U C R Q I D X O D K I I L Y S P A G S C
Y R T R S E G A K C A P Y C N A T N U O C C A P E
B S A S Q X R O K T H E A D C L E A N E R S D A S
G V D R U M E A B X G J Z B X I P A A N O C L N S
S N O B B I R R E T N I R P M J Y W A S B X S K O
V M G N T E C L P C M O D E M S O D R A M S L Z R
J V T G D S K R O W T E N M P I Z L I Y R F D J S
Z Q N W D A I S Y W H E E L S Z F J Y N W V A B Z
```

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In the above grid you will find the names in-stock. These items are all supplied by COMSOFT. All entries to be returned by August 1st 1989. All prize winners will be notified direct and the list of winners will be printed in this magazine. The first five correct entries from the accumulated mail will receive a £50.00 Software Voucher which will be exchanged for computer software.

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APPLICATION ADVICE



David Dorn tackles this month's problems and offers words of wisdom.

A quick one to start. A. James, who lives at the Beggar's Roost has written to tell me that he has a routine to do a fast fill in any mode, any colour, and all in machine code. It is a pattern fill rather than a solid fill and he has developed it under BBC Basic running under CP/M Plus. It strikes me as being the long way round. I reckon that this is really one for Liz Ting so get your machine to data statements utility out of the closet, and send it in.

Problems with MOII

Laszlo Cser, of Ashford, Middlesex bought a 6128 in February, along with all kinds of programs. Among them was *Mini Office II*, the Database Software integrated package. Cser says: "You will think this is funny but would you tell me how to delete a file in Mini Office without re-formatting the entire disc? This problem has reached a critical stage, as now I have 39 unwanted pieces of text taking up space on the discs."

I do not think it is funny but it is one of the common problems beginners have. I can find no facility in the word processor module in MO II to delete files from disc. What you need to do is, first, never save anything on to the original disc but always use a 'text' disc; this should hold all your text files and nothing else.

Second, keep a second formatted disc handy, in case there is no room for the file you want to save on the 'text' disc. To delete any file, you will have to do the job from Basic, using the ':ERA' command. The syntax is :ERA,"filename.ext".

It is probably a good idea to have separate discs for database files, spreadsheets, and so on, always remembering to keep a blank formatted disc handy for those awkward moments.

Phil and Protext/Rodos

Pete Ravenscroft of Knowle, Bristol tells me he has been playing with Rodos and Protext/spell/merge+ on his 664 with memory upgrade and 3.5in. 800K second drive. This is as a result of Phil Craven's comparative review of Rodos and Ram/Romdos in the June issue. Craven had had problems saving to big discs under Rodos, which Ravenscroft says he does not have. Funnily enough, neither do I. It is nothing to do with the version of Protext on ROM, or Rodos either.

What interests me most about Ravenscroft's letter is a little throwaway line "Rodos is a big improvement over Amsdos and opens the world of different disc drives. I shall soon be attempting to attach a 10MB hard disc." Did you notice it? I will be very interested to

hear if he manages to get a hard disc up and running, as I am sure hordes of other CPC users will be. There are a few of us who have been pestering various companies to produce a CPC hard drive, so I am sure there is plenty of interest.



HELP!

I received a letter from Jim Sedgwick in which he apologises for not enclosing some interesting material with his earlier letter, all to do with a printer dump problem. My problem is that we do not seem to have the first letter. Will he send it again?

Special Impediments

Nicholas De La Haye, aged 14, from Guernsey writes to say he has a problem with his speech synthesiser, which will talk to him only in a 'Robot' voice. He has tried using :FEED but cannot get a human-like sound and, judging by his letter, both he and his 6128 are fed up with it.

He asks if there is any way to make the voice tone more human in quality. In my part of the country – Washington, in the north-east – we all sound like SSIs. Seriously though, for the CPC you are stuck with Dalek-like voice sounds. I prefer the infinite variety of words you can produce with phoneme synthesis modules.

ROMing all over the world

Ben Clewett sent a word-processed but not spell-checked missive from Oxford seeking advice about ROM blowers. More specifically, he asks what programs you can transfer to ROM without breaking copyright laws. Is it just those you have written yourself, or can you transfer any title to which you have legal access?

I reckon that there are as many answers to this question as there are people of whom to ask it. My stance is that if you have a program you use a good deal and want it on ROM, I can see no harm in doing the job, but with certain provisos. You must keep the original disc and not dispose of it in any way, either by sale or a swap. In other words, possession of the original, unaltered packages entitles you to use that package, so long as you required it legally.

Since I will not, on principle, buy any software which cannot be backed-up, I take the view that I am entitled to keep a working copy of a program, as well as the original. If I decide to keep that working copy on ROM, rather than on a 3in disc or tape, I cannot see it makes any difference.

If I sell the original package and keep the ROM for my use, I am in breach of copyright, since I no longer hold the licence to use the software. So, if the original is sold, the ROM must either be erased or go as part of the package.

Graduate Software, whose CP/M Plus ROMs I reviewed in *CPC Computing* before it and *ACU* were merged, had the same dilemma. It approached Digital Research and Amstrad with its idea and according to its managing director, got little in the way of reply. It has gone ahead and done the deed, successfully too, so the precedent is there. I hope that is of some assistance to you.

You can contact me by Telecom Gold on 74:mik2050, or on Prestel on MBX 914177811 if you prefer to use your modem.

Lightpen answers

Katy Powell of Wisbech, Cambs asks what lightpen she needs to print pictures with her 464 and DMP 2160. The short answer is none but I sense that there is more to the question.

Before I go any further with it I have to tell you that, on the whole, a lightpen is my least favourite input device. They tend to be less than 100 percent accurate and make your wrist ache after a short time using them against an upright screen. I much prefer a mouse – the AMX mouse, now being sold by Database, or the Kempston mouse, which is also a good one, to a lightpen.

If a lightpen it must be, your best bet is the Trojan lightpen. It has some good software with it and is priced at around £20. There are screendumps included in the package, which should work well with your set-up.

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